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THE IBIS,

A

QUARTERLY JOURNAL OF ORNITHOLOGY.

EDITED BY

PHILIP LUTLEY SCLATER, D.Sc., F.R.S.,

SECRETARY TO THE ZOOLOGICAL SOCIETY OF LONDON,

AND

A. H. EVANS, M.A., F.Z.S.

VOL. I. 1901.

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Quam magnificata sunt opera tua, Domine.

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1901.

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RED LION COURT, FLEET STREET.

PREFACE.

THE Editors cannot allow the first volume of the Eighth Series of 'The Ibis' to be brought to a close without taking the opportunity of thanking their many contributors for the constant support given to them. It will be observed that the present volume is of ample dimensions, and yet it has been necessary to defer the publication of more than one important paper owing to want of space, while several others are already promised for the immediate future.

In truth, the very increase in the articles, gratifying though it undoubtedly is, forms a matter for serious consideration. The welfare of such a Journal as this naturally depends upon the communications that it receives, and the Editors would not wish them to be less by a single paper; at the same time they feel a certain anxiety, which they believe is shared by many other Ornithologists, at the gradual augmentation in bulk of the annual volume. It would be to the mutual advantage of all authors if they would compress their information as far as is compatible with a proper treatment of their subjects. Thus their facts would stand forth more clearly, and their valuable notes be better appreciated, than when they are imbedded in a certain amount of matter of less immediate importance, which is perhaps hardly necessary. The mere number of pages that a worker has now to turn over is fast becoming a laborious task.

With regard to the subjects which we venture to commend to Ornithologists as worthy of special attention, we may remark that in the Pterylography and Anatomy of Birds much yet remains to be done, especially as by their means fresh light may be thrown upon the arrangement of the Passerine Birds, which, it must be recollected, constitute nearly one-half of the Class Aves. A renewed study of the wing-structure of the Passeres might lead to valuable results, and enable us to introduce some order into the present chaotic state of that most important group.

P. L. S.
A. H. E.

3 Hanover Square,
September 24th, 1901.

BRITISH ORNITHOLOGISTS' UNION.

1901.

[An asterisk indicates an Original Member. It is particularly requested that Members will give notice to the Secretary of the Union, 3 Hanover Square, London, W., of any error in their addresses or descriptions in this List, in order that it may be corrected.]

Date of Election.

1896. Alexander, Capt. Boyd, F.Z.S. (7th Bn. Rifle Brigade); Wilsley, Cranbrook, Kent.

1901. Allchin, James H.; 24 Bower Mount Road, Maidstone.

1888. Aplin, Oliver Vernon; Bloxham, Banbury, Oxon.

1896. Archibald, Charles F.; 9 Cardigan Road, Headingley, Leeds.

5 1896. Arrigoni degli Oddi, Count Ettore, Professor of Zoology, University, Padua; and Ca' oddo, Monselice, Padua, Italy.

1901. Arundel, Major Walter B.; High Ackworth, Pontefract.

1901. Ashby, Herbert; Pinehurst, Basset, near Southampton.

1897. Astley, The Rev. Hubert Delaval, F.Z.S.; Benham Park, Newbury, Berks.

1885. Backhouse, James, F.Z.S.; Daleside, Harrogate.

10 1901. Bailward, Lt.-Col. A. C. (R.F.A.); 1 Princes Mansions, Victoria Street, S.W.

1892. Baker, E. C. Stuart, F.Z.S.; District Superintendent of Police, Dibrughur, Assam, India; care of Messrs. H. S. King & Co., 65 Cornhill, E.C.

1901. Baker, John C., M.B., B.A.; The Mount, Witley, Surrey.

1899. Balfour, Frederick Robert Stephen; Dawyck, Stobo, N.B.; and Bachelors' Club, Piccadilly, W.

1889. Balston, Richard James, F.Z.S.; Springfield, Maidstone.

15 1890. Barclay, Francis Hubert, F.Z.S.; The Warren, Cromer, Norfolk.

1872. Barclay, Colonel Hanbury, F.Z.S.; Tingrith Manor, Woburn, Bedfordshire.

1885. Barclay, Col. Hugh G., F.Z.S.; Colney Hall, Norwich.

1889. Barrett-Hamilton, Capt. Gerald E. H., F.Z.S. (5th Royal Irish Rifles); Kilmanock, Arthurstown, Ireland.

1881. Barrington, Richard Manliffe, LL.B.; Fassaroe, Bray, Co. Wicklow.

Date of Election.

0 1884. **Beddard, Frank E.**, M.A., F.R.S., F.Z.S., Vice-Secretary and Prosector to the Zoological Society of London; Zoological Society's Gardens, Regent's Park, N.W.

1897. **Benson, John**; The Post Office, Vancouver, B.C.

1897. **Berry, William**, B.A., LL.B.; Tayfield, Newport, Fifeshire.

1880. **Bidwell, Edward**; 1 Trig Lane, Upper Thames Street, E.C.

1884. **Bingham, Lt.-Col. Charles T.** (Indian Staff Corps), F.Z.S.; care of Messrs. H. S. King & Co., 65 Cornhill, E.C.

5 1892. **Bird, The Rev. Maurice C. H.**, M.A.; Brunstead Rectory, Stalham, S.O., Norfolk.

1891. **Blaauw, F. E.**, C.M.Z.S.; Gooilust, 'sGraveland, Noord-Holland.

1898. **Bland, Ivers**; Newbold Firs, Leamington.

1873. **Blanford, William T.**, LL.D., F.R.S., F.Z.S.; 72 Bedford Gardens, Kensington, W.

1893. **Bolam, George**, F.Z.S.; Berwick-on-Tweed.

0 1897. **Bonar, The Rev. Horatius Ninian**; Free Church Manse, Salton, Pencaitland, East Lothian, N.B.

1894. **Bonhote, John Lewis**, F.Z.S.; Ditton Hall, Fen Ditton, Cambridgeshire.

1898. **Booth, George Albert**; Phœnix Iron Works, Derby Street, Preston; and Fern Hill, Grange-over-Sands, Lancs.

1895. **Bradford, Dr. J. Rose**, F.R.S.; 8 Manchester Square, W.

1885. **Brockholes, William Fitzherbert**; Claughton-on-Brock, Garstang, Lancashire.

5 1890. **Brooke, Harry Brinsley**; 33 Egerton Gardens, Kensington, W.

1899. **Brooke, John Arthur**, J.P.; Fenay Hall, Huddersfield; and Fearn Lodge, Ardgay, Ross-shire.

1900. **Bruce, William Spiers**; Zoological Laboratory, Surgeons' Hall, Edinburgh.

1868. **Buckley, Thomas Edward**, B.A., F.Z.S.; Rossal, Inverness, N.B.

1895. **Bulgaria, H.R.H. Ferdinand, Prince of**; Sophia, Bulgaria.

0 1872. **Buller, Sir Walter Lawry**, K.C.M.G., Sc.D., F.R.S., C.M.Z.S.; 122 Tinakori Road, Wellington, New Zealand.

1899. **Butler, Arthur Lennox**, F.Z.S.; Superintendent, Wild Animals Department, Khartoum, Sudan.

1884. **Butler, Lieut.-Col. E. A.**; Plumton House, Bury St. Edmunds, Suffolk.

Date of Election.

1896. Butterfield, W. C. J. Ruskin; 4 Stanhope Place, St. Leonards-on-Sea.

1900. Buttress, Bernard A. E.; The Cross House, Fawkham, Kent.

45 1884. Buxton, Geoffrey Fowell, F.Z.S.; Dunston Hall, Norwich.

1895. Buxton, S. Gurney, F.Z.S.; Catton Hall, Norwich.

1896. Cade, Francis J.; Teighmore, Cheltenham.

1889. Cameron, Ewen Somerled, F.Z.S.; Tighnamara, Dornoch, Sutherlandshire.

1896. Cameron, Lieut. James S.; 1st Bn. Royal Sussex Regt., South Africa; and Low Wood, Bethersden, Ashford, Kent.

50 1888. Cameron, John Duncan; Low Wood, Bethersden, Ashford, Kent.

1892. Campbell, Charles William, C.M.Z.S., H.B.M. Chinese Consular Service; British Legation, Peking, China.

1888. Carter, James; Burton House, Masham, R.S.O., Yorkshire.

1899. Cartwright, Thomas Leslie Melville; Newbottle Manor, Banbury.

1890. Cave, Charles John Philip, F.Z.S.; Ditcham Park, Petersfield.

55 1888. Chamberlain, Walter, F.Z.S.; Bromesberrow Place, Ledbury.

1894. Chance, A. Macomb, Jun., B.A.; Lawnside, Edgbaston, Birmingham.

1884. Chapman, Abel, F.Z.S.; 9 South Bailey, Durham.

1882. Chase, Robert William; Southville, Priory Road, Edgbaston, Birmingham.

1900. Chatterton, Frederick J. S.; 78 Clissold Road, Stoke Newington, N.

60 1897. Cholmley, Alfred John, F.Z.S.; Place Newton, Rillington, Yorkshire.

1889. Clarke, Stephenson Robert, F.Z.S.; Borde Hill, Cuckfield, Sussex.

1880. Clarke, William Eagle, F.L.S.; Museum of Science and Art, Edinburgh.

1898. Cocks, Alfred Heneage, F.Z.S.; Poynetts, Skirmett, near Henley-on-Thames.

1898. Coke, Hon. Richard; 1st Bn. Scots Guards, South Africa.

65 1895. Coles, Richard Edward; Ashley, Arnewood.

1880. Cooper, Rt. Hon. Lieut.-Col. E. H., P.C., F.Z.S.; 42 Portman Square, W.

1888. Cordeaux, Captain William Wilfrid (21st Lancers); Westgate Court, Canterbury.

Date of Election.

1882. Cory, Charles B., F.Z.S.; Third National Bank, State Street, Boston, Mass., U.S.A.

1899. Cowie, Archibald; St. John's School, Leatherhead.

70 1896. Cowie, Major Alexander Hugh, R.E., F.Z.S.; care of H. Ward, Esq., Yeatton, Lymington, Hants; and St. Lucia, West Indies.

1896. Crawford, Francis C.; 19 Royal Terrace, Edinburgh.

1894. Crewe, Sir Vauncey Harpur, Bt.; Calke Abbey, Derbyshire.

1896. Crockett, Samuel Rutherford; Bank House, Penicuik, Midlothian.

1895. Crossley, Sir Savile B., Bt., F.Z.S.; Somerleyton, Lowestoft; and 12 Carlton-House Terrace, S.W.

75 1898. Crossman, Alan F.; St. Cuthbert's, Berkhamsted, Herts.

1898. Crowley, Reginald Alwyn; Highfield, Alton, Hants; and 22 High Street, Croydon.

1899. Curtis, Frederick; The College, Guy's Hospital, S.E.

1877. Dalgleish, John J.; Brankston Grange, Bogside Station, Stirling, N.B.

1898. Dalrymple, Hon. John James; 1st Bn. Scots Guards, South Africa.

80 1896. Danford, Bertram W. Y., R.E.; Bermuda.

1897. Darnley, Ivo Francis Walton, Earl; Cobham Hall, Gravesend; and Clifton Lodge, Athboy, Co. Meath.

1883. Davidson, James, F.Z.S.; Karwar, Kanara, Bombay; and 32 Drumsheugh Gardens, Edinburgh.

1899. Davies, Lt. Sutton A. (2nd East Lancs. Regt.); Jullundur, Punjab, India.

1891. De Vis, Charles W.; Queensland Museum, Brisbane; and care of B. Quaritch, 15 Piccadilly, W.

85 1893. De Winton, W. E., F.Z.S.; Graftonbury, Hereford; and 59 Charlotte Street, Portland Place, W.

1896. Dobbie, James B., F.Z.S.; 2 Hailes Street, Edinburgh.

1889. Dobie, William Henry, M.R.C.S.; 2 Hunter Street, Chester.

1895. Donovan, Capt. Charles, I.M.S.; Madras, India.

1865. Dresser, Henry Eeles, F.L.S., F.Z.S.; 110 Cannon Street, E.C.

90 1898. Drewitt, Dr. Frederic George Dawtrey, M.A., M.D., F.R.C.P., F.Z.S.; 14 Palace Gardens Terrace, Kensington, W.

Date of Election.

1890. Drummond-Hay, Major James A. G.; 1st Bn. Coldstream Guards, South Africa; and Seggieden, Perth, N.B.

1878. Durnford, W. Arthur, J.P.; Elsecar, Barnsley.

1896. Duthie, Lt.-Col. W. H. M.; The Presbytery, North Berwick.

1870. Elliot, Daniel Giraud, F.R.S.E., F.Z.S.; Field Columbian Museum, Chicago, U.S.A.

95 1895. Elliot, Edmund A. S., M.R.C.S.; Woodville, Kingsbridge, South Devon.

1884. Elliott, Algernon, Civil and Sessions Judge, Amraoti Camp, Berar, H.A.D., India.

1866. Elwes, Henry John, F.R.S., F.Z.S.; Colesborne, Cheltenham.

1895. Erlanger, Freiherr Carlo von; Nieder Ingelheim, Rhein Hessen, Germany.

1879. Evans, Arthur Humble, M.A., F.Z.S.; 9 Harvey Road, Cambridge. (*Editor.*)

100 1888. Evans, William, F.R.S.E.; 38 Morningside Park, Edinburgh.

1892. Fairbridge, William George; 133 Long Market Street, Capetown, South Africa.

1895. Falconer, John J. M.; St. Ann's, Lasswade, N.B.

1894. Farquhar, Capt. Arthur M., R.N.; Granville Lodge, Aboyne, N.B.; and H.M.S. 'Diana,' Mediterranean Squadron.

1898. Farquhar, Commr. Stuart St. J., R.N.; H.M.S. 'Pembroke,' Chatham; and Drumnagesk, Aboyne, N.B.

105 1873. Feilden, Col. Henry Wemyss, C.M.Z.S.; West House, Wells, Norfolk; and Junior United Service Club, S.W.

1897. Fenwick, Edward Nicholas Fenwick; Oxford and Cambridge Club, Pall Mall, S.W.

1886. Ferguson, Lieut. Harold Stuart, F.Z.S.; Nair Brigade, Trevandrum, Travancore, India.

1901. Finlinson, Horace W.; Goldington Avenue, Bedford.

1892. Finn, Frank, B.A., F.Z.S.; Indian Museum, Calcutta.

110 1890. Fisher, Lionel; Kandy, Ceylon.

1884. Forbes, Henry Ogg, LL.D., F.Z.S.; Free Public Museums, Liverpool.

1898. Foster, George E.; Brooklands, Cambridge.

1880. Foster, William; Braeside, The Heath, Weybridge.

1887. Fowler, William Warde, M.A.; Lincoln College, Oxford.

115 1865. Fox, The Rev. Henry Elliott, M.A.; The Croft, Lytton Grove, Putney Hill, S.W.

1881. Freke, Percy Evans; 7 Limes Road, Folkestone.

Date of Election.

1895. Frohawk, Frederick William; 42 Waddon Road, Croydon.

1881. Gadow, Hans, Ph.D., F.R.S., F.Z.S.; University Zoological Museum, Cambridge.

1886. Gainsborough, Charles William Francis, Earl of; Exton Park, Oakham.

120 1900. Garnett, Charles; 9 Porchester Gardens, W.; and New University Club, St. James's Street, S.W.

1900. Gayner, Francis; Beech Holm, Sunderland; Kings' College, Cambridge; and 20 Queen Square, W.C.

1892. Gerrard, John, Government Inspector of Mines; Worsley, near Manchester.

1879. Gibson, Ernest; 1 Eglinton Crescent, Edinburgh.

* 1858. Godman, Frederick DuCane, D.C.L., F.R.S., F.Z.S.; 10 Chandos Street, Cavendish Square, W. *President.*

125* 1858. Godman, Percy Sanden, B.A., C.M.Z.S.; Muntham, Horsham.

1901. Goodchild, Herbert; 119 Gloucester Road, Regent's Park, N.W.

1900. Goodfellow, Walter; Rosedale, Broadstone, Dorset.

1899. Gould, Frank Herbert Carruthers; Amherst, Grove Road, East Molesey, Surrey.

1895. Grabham, Oxley, M.A.; Thornton Dale, Pickering, Yorks.

130 1890. Grant, William R. Ogilvie-; 29 Elvaston Place, S.W.

1885. Guillemard, F. H. H., M.A., M.D., F.Z.S.; Old Mill House, Trumpington, Cambridge.

1876. Günther, Albert C. L. G., M.A., M.D., F.R.S., F.Z.S.; 2 Lichfield Road, Kew Gardens, S.W.

1898. Gurney, Lieut. Anthony Francis, R.N.; North Runcton Hall, King's Lynn; and H.M.S. 'Pembroke,' Chatham.

1870. Gurney, John Henry, F.Z.S.; Keswick Hall, Norwich; and Athenæum Club, Pall Mall, S.W.

135 1897. Gurney, J. Nigel; Sprowston Hall, Norwich.

1896. Gurney, Robert; Sprowston Hall, Norwich.

1890. Gwatkin, Joshua Reynolds Gascoign; The Manor House, Potterne, Devizes.

1901. Haagner, Alwin C.; South African Constabulary, Modderfontein, South Africa.

1891. Haigh, George Henry Caton; Grainsby Hall, Great Grimsby, Lincolnshire.

Date of Election.

140 1898. **Haines, Charles Reginald**, M.A.; Meadhurst, Uppingham, Rutland.

1887. **Haines, John Pleydell Wilton**; 17 King Street, Gloucester.

1898. **Hale, The Rev. James Rashleigh**, B.A.; The Vicarage, Horton Kirby, Dartford, Kent.

1886. **Hamilton, Edward**, M.D., F.L.S., F.Z.S.; 16 Cromwell Place, S.W.

1900. **Harper, Edmund William**, F.Z.S.; 1a Camac Street, Calcutta.

145 1900. **Harris, Henry Edward**; Overton, Torquay.

1893. **Hartert, Ernst**; The Museum, Tring, Herts.

1868. **Harting, James Edmund**, F.L.S., F.Z.S.; Linnean Society, Burlington House, Piccadilly, W.

1896. **Hartland, John Cole**; c/o Messrs. Hunt & Co., P.O. Box 11, Yokohama, Japan.

1893. **Hartmann, William**; Tangley Mere, Chilworth, Surrey.

150 1899. **Harvey, Capt. Robert Napier**, R.E.; Stanhope Lines, Aldershot.

1873. **Harvie-Brown, John A.**, F.Z.S.; Dunipace House, Larbert, N.B.

1900. **Hasluck, Percy Pedley Harford**; The Wilderness, Southgate, N.

1898. **Hawker, Richard M.**, F.Z.S.; Bath Club, Dover Street, W.; and c/o A. Scott, Esq., 83 St. Clement's House, Clement's Lane, E.C.

1887. **Herbert, Charles T.**, F.Z.S.; The Rhodrons, Hook, Kingston-on-Thames.

155 1899. **Heywood, Richard**; St. Margaret's Place, King's Lynn, Norfolk.

1900. **Hills, John Waller**; 14 Victoria Grove, Kensington, W.; and Corby Castle.

1895. **Hinxman, Lionel W.**, B.A.; Geological Survey of Scotland, Edinburgh.

1884. **Holdsworth, Charles James**; Sunnyside, Wilmslow, Cheshire.

1877. **Holdsworth, Edmund W. H.**, F.Z.S.; South Town, Dartmouth, Devon.

160 1891. **Holland, Arthur H.**; Estancia Sta. Elena, Halsey, F.C.O., Argentine Republic; and Holmhurst, Copse Hill, Wimbledon, S.W.

Date of Election.

1888. Horsfield, Herbert Knight; Ivy Lodge, Chapel Allerton, Leeds.

1893. Hose, Charles, D.Sc., F.Z.S.; Baram, Sarawak, Borneo.

1895. Howard, Henry Eliot; Clarelands, near Stourport.

1881. Howard, Robert James; Shearbank, Blackburn, Lancashire.

165 1858. Hudleston, Wilfrid Hudleston, M.A., F.R.S., F.Z.S.; 8 Stanhope Gardens, S.W.

1893. Hudson, William Henry, F.Z.S.; Tower House, St. Luke's Road, Westbourne Park, W.

1869. Hume, Allan Octavian, C.B., C.S.I., F.Z.S.; The Chalet, Kingswood Road, Upper Norwood, S.E.

1890. Hunter, Henry Charles Vicars; Mawley Hall, Cleobury Mortimer, Salop.

1901. Ingram, Collingwood; The Bungalow, Westgate-on-Sea; and c/o Lady Ingram, 65 Cromwell Road, S.W.

170 1870. Irby, Lieut.-Col. Leonard Howard, F.Z.S.; 14 Cornwall Terrace, Regent's Park, N.W.

1888. Jackson, Frederick J., C.B., F.L.S.; The Red House, Aldeburgh, Suffolk.

1892. James, Henry Ashworth; Hurstmonceux Place, Hailsham, Sussex.

1896. Jesse, William; La Martinière College, Lucknow, Oudh, India.

1889. Johnson, Frederick Ponsonby, B.A., J.P., D.L.; Castlesteads, Brampton, Cumberland.

175 1891. Johnston, Sir Harry Hamilton, K.C.B., F.Z.S.; Queen Anne's Mansions, S.W.

1900. Jones, Major Henry (late 62nd Regt.); East Wickham House, Welling, Kent.

1899. Jourdain, The Rev. Francis Charles Robert, M.A.; Clifton Vicarage, near Ashbourne, Derbyshire.

1880. Kelham, Col. Henry Robert (1st Bn. Highland Light Infantry); 52 Lisbury Road, Hove, Brighton.

1894. Kelsall, Capt. Harry Joseph (R.G.A.); c/o J. W. Jameson, Esq., Roxborough, Bowdon, Cheshire.

180 1897. Kelsall, The Rev. John Edward, M.A.; Milton Rectory, Lymington, Hants.

1882. Kermode, Philip M. C.; Hillside, Ramsay, Isle of Man.

1891. Kerr, J. Graham, F.Z.S.; Christ's College, Cambridge.

Date of Election.

1895. Kingsford, William Edward; Horsell, Woking, Surrey.

1900. König, Dr. Alexander Ferdinand; Professor at Bonn University, Coblenzer-Strasse 164, Bonn, Germany.

185 1882. Knubley, The Rev. Edw. Ponsonby, M.A.; Steeple Ashton Vicarage, Trowbridge.

1892. Laidlaw, Thomas Geddes; Bank of Scotland, Morningside Branch, 8 Morningside Road, Edinburgh.

1884. Langton, Herbert; 11 Marlborough Place, Brighton.

1881. Lascelles, The Hon. Gerald; The King's House, Lyndhurst.

1892. La Touche, John David Digues, C.M.Z.S.; Lt.-Governor, N.W.P., Government House, Allahabad, India.

190 1892. Laws, Arthur Moore; Ayrshire Mine, Lamagundi, Mashonaland, South Africa.

1898. Learoyd, A. Ernest; Rawthorpe Hall, Huddersfield.

1876. Legge, Col. William Vincent (late R.A.), F.Z.S.; Cullenswood House, St. Mary's, Tasmania.

1898. Le Souëf, Dudley; Zoological and Acclimatisation Society, Zoological Gardens, Melbourne.

1868. Le Strange, Hamon, F.Z.S.; Hunstanton Hall, King's Lynn, Norfolk.

195 1875. L'Estrange, Col. Paget Walter, R.A.; Llwynbedw, Boncath, R.S.O., South Wales.

1893. Lewis, Frederick; Assistant Conservator of Forests, The Kachchin, Colombo, Ceylon.

1889. Leyland, Christopher John; Haggerston Castle, Beal, Northumberland.

1897. Lilford, John, Lord, F.Z.S.; Lilford Hall, Oundle, Northants.

1874. Lloyd, Col. John Hayes, F.Z.S.; 95 Adelaide Road, N.W.

200 1898. Loat, William Leonard S., F.Z.S.; Newland, Coleford, Gloucestershire; and The School of Medicine, Cairo, Egypt.

1897. Lodge, George Edward, F.Z.S.; 5 Verulam Buildings, Gray's Inn, W.C.

1889. Loyd, Major Arthur Purvis, F.Z.S. (late 21st Hussars); Harnham Cliff, Salisbury.

1896. Lubbock, Percy; 26 Cadogan Gardens, S.W.; and King's College, Cambridge.

1877. Lumsden, James, F.Z.S.; Arden House, Alexandria, N.B.

Date of Election.

205 1896. **Luttman-Johnson, James Arthur**, M.A., F.Z.S.; 101 Mount Street, W.

1900. **McConnell, Frederick Vavasour**: 37 Cranley Gardens, South Kensington, S.W.

1897. **McLean, John Chambers**; Waikohu Station, Te Karaka, Gisborne, New Zealand.

1899. **Macmillan, George Augustin**; 19 Earl's Terrace, Kensington, W.

1894. **Macpherson, Arthur Holte**; 51 Gloucester Terrace, Hyde Park, W.

210 1886. **Macpherson**, The Rev. **Hugh Alexander**, M.A.; The Rectory, Pitlochry, Perthshire.

1875. **Malcolm of Poltalloch, John Wingfield**, Lord, C.B., F.Z.S.; Poltalloch, Lochgilphead, Argyllshire; and 23 Great Cumberland Place, W.

1899. **Marais, Johann van Oosterzee**; c/o J. Hammond Toone, Esq., Department of Agriculture, Cape Town, Cape Colony.

1894. **Marshall, Archibald McLean**; 29 Queen's Gate Gardens, S.W.

1894. **Marshall, James McLean**; Estates Office, Dunskey, Portpatrick, N.B.

215 1899. **Martin, Basil William**; Elm House, Elm Row, Hampstead, N.W.; and Darley Abbey, Derby.

1901. **Martin, William K.**, B.A.; Dartington, Totnes, South Devon.

1897. **Mason**, Col. **Edward Snow**; 20 Minster Yard, Lincoln.

1898. **Massey, Herbert**; Ivy Lea, Burnage, Didsbury, Manchester.

1899. **Mathews, Arnold**; Ballynahinch Castle, Toombeola, Co. Galway.

220 1898. **Maxwell**, Capt. **Aymer Edward**, D.S.O., V.C.; 3rd Bn. Grenadier Guards, South Africa.

1896. **Maxwell**, Rt. Hon. Sir **Herbert E.**, Bt., P.C., M.P., F.R.S.; 49 Lennox Gardens, S.W.

1883. **Meade-Waldo, Edmund Gustavus Bloomfield**, F.Z.S.; Stonewall Park, Edenbridge, Kent.

1899. **Meinertzhagen, Richard**; Mottisfont Abbey, Romsey; 25 Rutland Gate, S.W.; and Royal Fusiliers.

1900. **Mitcalfe, Geoffrey Bryan Theophilus**: 8th (King's Royal Irish) Hussars; and Roche Court, Salisbury.

225 1886. **Millais, John Guille**, F.Z.S.; Comptons Brow, Horsham.

Date of Election.

1879. Mitchell, Frederick Shaw; Clyderhowe, Edmonton, Alberta, N.W.T., Canada.

1901. Mitchell, P. Chalmers, M.A., D.Sc., F.Z.S.; 32 Devonshire Place, W.

1897. Mitchell, William; 5 Bury Street, St. James's, S.W.

1898. Monro, Horace Cecil; Queen Anne's Mansions, Queen Anne's Gate, S.W.

230 1900. Montagu, Edwin S.; Trinity College, Cambridge; and 12 Kensington Palace Gardens, W.

1900. Mugford, Frederick Ernest; 16 Buckingham Street, Strand, W.C.

1886. Muirhead, George; Speybank, Fochabers, Co. Moray, N.B.

1893. Mullens, William H., M.A., F.Z.S.; 9 St. James's Place, S.W.

1892. Munn, Philip Winchester; Laverstoke, Whitchurch, Hants.

235 1897. Munt, Henry; 83 Kensington Gardens Square, W.

1900. Musters, John Patricius Chaworth, D.L., J.P.; Annesley Park, Nottingham.

1885. Neale, Edward; 43 Charlotte Street, Portland Place, W.

1882. Nelson, Thomas Hudson; The Cliffe, Redcar, Yorkshire.

1895. Nesham, Robert, F.Z.S., F.E.S.; Utrecht House, Queen's Road, Clapham Park, S.W.

240 1897. Neumann, Oscar; 10 Potsdamer Strasse, Berlin, W.

1872. Newcome, Francis D'Arcy William Clough; Thurston Lodge, Bury St. Edmunds, Suffolk.

1899. Newman, John Leonard; Park Field, Mill Hill, Middlesex.

* 1858. Newton, Alfred, M.A., F.R.S., F.Z.S., Professor of Zoology in the University of Cambridge; Magdalene College, Cambridge.

1886. Nicholls, Howard Hill John, M.R.C.S.; Bramber Lodge, Downview Road, West Worthing.

245 1900. Nichols, Walter Buchanan; Stour Lodge, Bradfield, Manningtree, Essex.

1876. Nicholson, Francis, F.Z.S.; 84 Major Street, Manchester; and Heathside, Knutsford, Cheshire.

1895. Noble, Heatley; Temple Combe, Henley-on-Thames.

1887. Norman, George Cameron, F.Z.S.; 68 Lombard Street, E.C.; and Mount Melville, St. Andrews, N.B.

1882. Oates, Eugene William, F.Z.S.; 1 Carlton Gardens, Ealing, W.; and Savage Club, Adelphi Terrace, W.C.

Date of Election.

250 1892. Ogilvie, Fergus Menteith, M.A., F.Z.S.; The Shrubbery, 72 Woodstock Road, Oxford.

1889. Ogle, Bertram Savile; Hill House, Steeple Aston, Oxford.

1883. Parker, Henry, C.E., F.Z.S., Irrigation Officer, P.W.D., Kurunegala, Ceylon.

1880. Parkin, Thomas, M.A., F.Z.S.; Fairseat, High Wickham, Hastings.

1891. Patterson, Robert, F.Z.S.; Malone Park, Belfast.

255 1884. Patterson, R. Lloyd, D.L., F.L.S.; Croft House, Holywood, Co. Down.

1894. Pearson, Charles Edward; Hillcrest, Lowdham, Nottingham.

1891. Pearson, Henry J.; Bramcote, Notts.

1898. Penn, Eric Frank; Taverham Hall, Norwich.

1891. Penrose, Frank, M.D., F.Z.S.; 84 Wimpole Street, W.

260 1900. Percival, Arthur Blayney, F.Z.S.; Somerset Court, Brent Knoll, Somerset; and The Treasury, Mombasa, East Africa Protectorate.

1886. Phillips, E. Lort, F.Z.S.; 79 Cadogan Square, S.W.

1888. Phillips, George Thorne; Wokingham, Berkshire.

1893. Pigott, Thomas Digby, C.B.; 5 Ovington Gardens, S.W.

1893. Pike, Thomas Mayer, M.A.; care of Mr. Porter, 7 Prince's Street, Cavendish Square, W.

265 1899. Pope, Walter Henry; Windermere, Salisbury.

1896. Popham, Hugh Leyborne, M.A.; 5 Ryder Street, St. James's, S.W.; and Oxford & Cambridge Club, Pall Mall, S.W.

1898. Price, Athelstan E.; Broxbourne, Herts.

1901. Proud, John T.; Dellwood, Bishop Auckland.

1893. Pycraft, William Plane, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W.

270 1888. Radclyffe, Charles Robert Eustace; Hyde, Wareham, Dorset.

1879. Rawson, Herbert Evelyn, F.Z.S.; Fallbarrow, Windermere.

1894. Read, Richard Henry, L.R.C.P., M.R.C.S.; Church Street, Hanley.

1888. Read, Robert H.; 7 South Parade, Bedford Park, W.

1877. Reid, Capt. Savile G. (late R.E.), F.Z.S.; The Elms, Yalding, Maidstone.

Date of Election.

275 1893. Rendall, Percy, M.D., F.Z.S.; Ewell, Surrey; and Devonshire Club, St. James's Street, S.W.

1895. Rickett, Charles Boughey; Hong Kong and Shanghai Bank, Foochow; and care of Messrs. H. S. King & Co., 65 Cornhill, E.C.

1896. Rippon, Lt.-Col. George, F.Z.S.; 7th Burma Batn., Bhamo, Upper Burma.

1898. Robinson, Herbert C.; Holmwood, Aigburth, Liverpool.

1896. Rogers, Capt. J. Middleton, F.Z.S.; 1st (Royal) Dragoons; and Riverhill, Sevenoaks, Kent.

280 1893. Rothschild, The Hon. L. Walter, M.P., D.Sc., F.Z.S.; The Museum, Tring, Herts.

1894. Rothschild, The Hon. N. Charles, F.Z.S.; Tring Park, Tring, Herts.

1883. St. Quintin, William Herbert, F.Z.S.; Scampston Hall, Rillington, Yorkshire.

1899. Sapsworth, Arnold Duer, F.Z.S.; The Dower House, Ember Court, East Molesey, Surrey.

1870. Saunders, Howard, F.L.S., F.Z.S.; 7 Radnor Place, Hyde Park, W. (*Secretary.*)

285 1898. Scherren, Henry, F.Z.S.; 9 Cavendish Road, Harringay, N.

• 1858. Sclater, Philip Lutley, D.Sc., F.R.S., Secretary to the Zoological Society of London, 3 Hanover Square, W.; and Odiham Priory, Winchfield, Hants. (*Editor.*)

1891. Sclater, William Lutley, M.A., F.Z.S.; South African Museum, Capetown, South Africa.

1899. Selous, Frederick Courteney, F.Z.S.; Heatherside, Worplesdon, Surrey.

1889. Senhouse, Humphrey Patricius, B.A.; The Fitz, Cockermouth, Cumberland.

290 1899. Serle, The Rev. William, M.A., B.D.; Davidson's Mains, Midlothian, N.B.

1900. Service, Robert; Maxwelltown, Dumfriesshire.

1899. Sharman, Frederic; Yate Lodge, Bedford.

1871. Sharpe, Richard Bowdler, LL.D., F.L.S., F.Z.S.; Assistant Keeper, Zoological Department, British Museum (Natural History), South Kensington, S.W.

1900. Shelford, Robert; Curator of the Sarawak Museum, Kuching, Sarawak, British North Borneo; and Hill House, Harvey Road, Guildford.

Date of Election.

295 1870. Shelley, Capt. G. Ernest, F.Z.S. (late Grenadier Guards): 39 Egerton Gardens, South Kensington, S.W.

1865. Shepherd, The Rev. Charles William, M.A., F.Z.S.; Trottiscliffe Rectory, Maidstone Kent.

1900. Simey, Athelstane Iliff; The College, Durham, and King's College, Cambridge.

1882. Slater, The Rev. Henry H., M.A., F.Z.S.; Thornhaugh Rectory, Wansford, Northants.

1901. Smith, David Seth, F.Z.S.: Alleyne, Caterham, Surrey.

300 1896. Sondes, Earl; Lees Court, Faversham.

1881. Southwell, Thomas, F.Z.S.; 10 The Crescent, Chapel Field, Norwich.

1893. Stanley, Samuel S.; 3 Regent Grove, Leamington, Warwickshire.

1900. Stares, John William Chester; Portchester, Hants.

1898. Stirling, William, J.P., D.L. Co. Ross; Monar, Ross; and Kinellan Lodge, Strathpeffer, N.B.

305 1889. Stoate, William; Ashleigh, Burnham, Somerset.

1893. Stonham, Charles, F.R.C.S., F.Z.S.; 4 Harley Street, Cavendish Square, W.

1897. Streatfeild, Capt. Eric; 2nd Gordon Highlanders.

1881. Studdy, Col. Robert Wright (late Manchester Regiment); Waddeton Court, Brixham, Devon.

1887. Styan, Frederick William, F.Z.S.; Ben Craig, Bayham Road, Sevenoaks; and Shanghai, China.

310 1887. Swinburne, John; Carlton Lodge, Câtel, Guernsey.

1882. Swinhoe, Col. Charles (Indian Staff Corps), M.A., F.L.S., F.Z.S.; Avenue House, Cowley Road, Oxford.

1884. Tait, William Chaster, C.M.Z.S.; Entre Quintas 155, Oporto, Portugal.

• 1858. Taylor, Edward Cavendish, M.A., F.Z.S.; 74 Jermyn Street, S.W.

1873. Tegetmeier, William Bernhard, F.Z.S.; 16 Alexandra Grove, North Finchley, N.

315 1889. Tennant, Edward Priaulx; 40 Grosvenor Square, W.; and The Glen, Innerleithen, N.B.

1886. Terry, Major Horace A. (late Oxfordshire Light Infantry); The Lodge, Upper Halliford, Shepperton.

1900. Thorburn, Archibald; High Leybourne, Hascombe, near Godalming, Surrey.

Date of Election.

1893. Thorpe, Dixon L.; Loshville, Etterby Scaur, Carlisle.

1894. Ticehurst, Norman Frederic; Guy's Hospital, S.E.

320 1893. Trevor-Battye, Aubyn B. R., F.Z.S.; 2 Whitehall Gardens, S.W.

• 1858. Tristram, The Rev. Henry Baker, M.A., LL.D., F.R.S. C.M.Z.S., Canon of Durham; The College, Durham.

1864. Upcher, Henry Morris, F.Z.S.; East Hall, Feltwell, Brandon, Norfolk.

1896. Urwick, William F.; 27 Bramham Gardens, S.W.

1894. Ussher, Richard John; Cappagh House, Cappagh, R.S.O., Mallow, Co. Waterford, Ireland.

325 1890. Vhnour, Stephen; Fern Bank, Altrincham, Cheshire.

1884. Verey, Alfred Sainsbury; Heronsgate, near Rickmansworth.

1881. Verner, Lt.-Col. William Willoughby Cole; Junior United Service Club, S.W.

1886. Wade-Dalton, Col. H. D.; Hauxwell Hall, Fingball, R.S.O., Yorkshire.

1895. Wallis, Henry Marriage; Ashton Lodge, Reading.

330 1881. Walsingham, Thomas, Lord, F.R.S., F.Z.S.; Merton Hall, Thetford, Norfolk.

1899. Walton, Herbert James, M.B., F.R.C.S.; Indian Medica Service, Eden Hospital, Calcutta; and c/o Messrs. King, King, & Co., Bombay.

1872. Wardlaw-Ramsay, Lt.-Col. R. G., F.Z.S.; Whitehill, Rosewell, Midlothian, N.B.

1896. Watkins, Watkin; Highfield, Harrow; and Wellington Club, S.W.

1900. Westell, William Percival; 5 Glenferrie Road, St. Albans, Herts.

335 1891. Whitaker, Benjamin Ingham; Hesley Hall, Tickhill, Rotherham.

1891. Whitaker, Joseph I. S., F.Z.S.; Malfitano, Palermo, Sicily.

1887. Whitehead, Jeffery, F.Z.S.; Newstead, Wimbledon, Surrey.

1897. Whymper, Charles; 7 James Street, Haymarket, S.W.

1898. Wiglesworth, Joseph, M.D.; County Asylum, Rainhill, Lancs.

340 1894. Wilkinson, Johnson; Vermont, Huddersfield, Yorkshire.

1896. Williams, Capt. Lionel Arthur; Llangarran, Salisbury; 91 Victoria Street, S.W.; and Isthmian Club, Piccadilly, W.

Date of Election.

1897. **Wilson, Allan Reid**; Easthill, East Bank Road, Sheffield.

1888. **Wilson, Charles Joseph**; 34 York Terrace, Regent's Park, N.W.

1900. **Wilson, Edward Adrian**; Westal, Cheltenham.

345 1887. **Wilson, Scott Barchard**, F.Z.S.; Heatherbank, Weybridge Heath, Surrey.

1897. **Witherby, Harry Forbes**, F.Z.S.; 10 St. Germans' Place, Blackheath, S.E.

1899. **Wollaston, Alexander Frederick Richmond**, B.A.; Wotton-under-Edge, Gloucestershire.

1875. **Wright, Charles A.**, F.L.S., F.Z.S.; Kayhough, Kew-Gardens Road, Kew, S.W.

1871. **Wright, E. Perceval**, M.D., F.L.S., F.Z.S., Professor of Botany in the University of Dublin.

350 1891. **Wright, Thomas**, M.D.; Castle Place, Nottingham.

1895. **Yerbury, Lt.-Col. John William** (late R.A.), F.Z.S.; 8 Duke Street, St. James's, S.W.; and Army and Navy Club, S.W.

1889. **Young, Capt. James B.**, R.N.; Ridgway House, Ottery St. Mary, Devon.

1897. **Young, John Joseph Baldwin**, M.A.; Richmond Park, near Sheffield.

Extra-Ordinary Members.

1899. **Godwin-Austen, Lt.-Col. Henry Haversham**, F.R.S., F.Z.S.; Shalford Park, Guildford.

1860. **Wallace, Alfred Russel**, F.R.S., F.Z.S.; Corfe View, Parkstone, Dorset.

Honorary Members.

1886. **Ayres, Thomas**; Potchefstroom, Transvaal Colony, South Africa.

1890. **Berlepsch, Graf Hans von**, C.M.Z.S.; Schloss Berlepsch, Post Gertenbach, Witzenhausen, Germany.

1860. **Cabanis, Dr. Jean**, C.M.Z.S.; Friedrichshagen, bei Berlin.

1900. **Collett, Prof. Robert**, F.M.Z.S.; University Museum, Christiania.

5 1870. **Finsch, Dr. Otto**, C.M.Z.S.; Zool. Rijks Museum, Leiden.

1894. **Giglioli, Dr. Henry Hillyer**, F.M.Z.S.; Reale Istituto di Studi Superiori, Florence.

Date of Election.

1898. Goeldi, Dr. Emil A., C.M.Z.S.; Director of the Goeldi Museum, Pará, Brazil.

1893. Reichenow, Dr. Anton, C.M.Z.S.; Museum für Naturkunde, Invalidenstrasse, Berlin.

1890. Salvadori, Count Tommaso, M.D., F.M.Z.S.; Royal Zoological Museum, Turin.

Foreign Members.

1890. Allen, Joel Asaph, Ph.D., F.M.Z.S.; American Museum of Natural History, Central Park, New York City, U.S.A.

1900. Bianchi, Dr. Valentine; Imperial Zoological Museum, St. Petersburg.

1872. Bocage, Prof. J. V. Barboza du, F.M.Z.S.; Royal Museum, Lisbon.

1880. Bureau, Louis, M.D.; École de Médecine, Nantes.

5 1875. Doria, Marchese Giacomo, F.M.Z.S.; Strada Nuova, 6, Genoa, Italy.

1872. Fatio, Dr. Victor, C.M.Z.S., Geneva.

1886. Madarász, Dr. Julius von; National Museum, Buda-Pesth.

1894. Menzbier, Prof. Dr. Michael, C.M.Z.S.; Imperial Society of Naturalists, Moscow.

1881. Meyer, Dr. Adolf Bernhard, C.M.Z.S., Director of the Royal Museum, Dresden.

10 1890. Oustalet, Dr. Emile, C.M.Z.S.; Muséum d'Histoire Naturelle, Jardin des Plantes, Paris.

1894. Pleske, H.E. Dr. Theodor, F.M.Z.S.; Office of the Company "Nadeshda," St. Petersburg.

1872. Radde, Prof. Gustav, F.M.Z.S.; Tiflis.

1900. Reiser, Dr. Othmar; Landes Museum, Sarajevo, Bosnia, Austro-Hungary.

1880. Ridgway, Robert, C.M.Z.S.; Smithsonian Institution, Washington, D.C.

15 1894. Schalow, Herman; 15 Schleswiger Ufer, Berlin, N.W.

1900. Stejneger, Leonhard, C.M.Z.S.; Smithsonian Institution, Washington, U.S.A.

1896. Winge, Herluf; University Zoological Museum, Copenhagen.

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THE IBIS.

EIGHTH SERIES.

No. I. JANUARY 1901.

I.—*On a Specimen of the Extinct* Dromæus ater *discovered in the Royal Zoological Museum, Florence.* By Henry H. Giglioli, H.M.B.O.U., F.M.Z.S., Director of the Museum.

About the 9th or the 10th of April, 1802, a French exploring expedition, consisting of the ships 'Géographe,' 'Naturaliste,' and 'Casuarina,' under the orders of Baudin, to which also were attached the well-known naturalist F. Péron and the able draughtsman Lesueur, sailed along the south coast of New Holland and discovered a large island, which they named "Isle Decrès." It lies across the two deep indentations of the mainland now known as Encounter and St. Vincent Gulfs, opposite the mouth of the Murray River, and facing that fertile portion of the flourishing Colony of South Australia where the city of Adelaide now stands; then:

> "Sterilis profundi vastitas squalet soli,
> Et fœda tellus torpet æterno situ."—Seneca.

This island is now well known under the name of Kangaroo Island, an appellation bestowed on it by Captain Flinders, who discovered it a few months before the arrival of Baudin's expedition. On their first visit to the island the French explorers suffered from bad weather, hunger, and scurvy, and were unable to complete their exploration, being compelled to leave to get fresh provisions.

They returned at the end of 1802, and during the month of January 1803 the island was thoroughly explored. It was found to be arid, nearly devoid of water, and covered with scanty "bush." Not a single human being was met with, but the Frenchmen were struck with the large number of Kangaroos and Emeus living on that desolate spot: "On voyoit accourir du fond des bois de grandes troupes de Kanguroos et de Casoars, qui alloient demander à l'Océan une boisson que la Terre leur réfusoit sans doute." And further on Péron writes: "Mais de tous les oiseaux que l'île Decrès reçut en partage de la Nature, les plus utiles à l'homme sont les Casoars: ces gros animaux paroissent exister sur l'île en troupes nombreuses; mais comme ils sont très agiles à la course, et que nous mîmes peu de soin à les chasser, nous ne pûmes nous en procurer que trois individus vivans."

Péron, in the narrative of the expedition, besides the above quotations, describes the Emeu found on Kangaroo Island; and in the accompanying Atlas gives a fair plate representing the male, female, and young *. The three living specimens captured on L'Ile Decrès were evidently hardy birds; they reached Paris safely on the return of Baudin's expedition in 1804, and were presented to the Emperor Napoleon. One was placed in the Menagerie at the Jardin des Plantes; the other two were sent to "La Malmaison," where the Empress Joséphine then held her court.

Two of these birds certainly lived until 1822, when one of them was mounted entire and placed in the Ornithological Gallery of the Parisian "Muséum"; the other was prepared as a skeleton, which was placed in the Comparative Anatomy department of the same Museum. I have examined both of them. The third specimen disappeared, or, at least, no mention is made of its ultimate fate; but of that anon.

Péron was evidently under the impression that his bird was identical with the "Casoar de la Nouvelle Hollande,"

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* Péron et Freycinet, 'Voyage de découvertes aux Terres Australes, 1800-1804,' tome i. p. 326, tome ii. pp. 71-78; Atlas, pls. xxxvi., xli. (Paris, 1807-1816).

as *Dromæus novæ-hollandiæ* was then called; and it does not seem quite certain who first discovered that there was a "Great" and a "Lesser" Emeu. From a letter to 'Nature' by Prof. Alfred Newton, to which I shall refer later, it would appear that such a distinction was made in Bullock's Museum as early as 1812. Vieillot proposed the name which the small Emeu now bears in 1817 (Nouv. Dict. x. p. 212), but he did not then properly define the species, being evidently, as is shown by what he wrote on the subject, under the impression that the smaller and darker specimens were birds which had not attained their full growth. It was, so far as I am aware, first thoroughly defined by Bonaparte as late as 1856 (Comptes Rend. xliii. p. 841. n. 5), when he gave full zoological and anatomical differential characters distinguishing *D. ater* from *D. novæ-hollandiæ*. Fuller details of the distinctive characters of *D. ater*, and an excellent coloured plate of the mounted specimen in the Paris Museum, were published thirty-seven years later by A. Milne-Edwards and E. Oustalet *; a few further notes on the same bird, with sketches of the head from life by Lesueur, were published by the same authors in the 'Bulletin du Muséum d'Histoire Naturelle,' 1899, n. 5, p. 206. The most important point contained in these notes, based on MSS. of Lesueur now in the Museum at Havre, is that, previous to their visit to Kangaroo Island, viz. in December 1802, the French naturalists of Baudin's expedition landed and camped for some days on King Island, off the western entrance to Bass Straits. They found there six sealers headed by one Cowper, who showed them considerable attentions; from him they learnt that a small dark "*Hemeo*," as the English name is spelled, or "*Casoar*," was so common on the island that Cowper asserted that he had himself killed 300. This easily explains how, through the agency of sealers and their dogs, the Emeu on King Island soon became extinct; it is quite possible that it was the Lesser one, *D. ater*, but that has not been proved.

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* A. Milne-Edwards et E. Oustalet, "Notice sur quelques Espèces d'Oiseaux actuellement éteintes," etc., etc., in 'Volume commémoratif du Centenaire de la Fondation du Muséum,' p. 251, pl. v. (Paris, 1893).

This episode of Baudin's expedition shows how the extermination of *D. ater* on Kangaroo Island took place. I have been told that in the early days of South Australia a settler squatted on the island and that he deliberately made an end of the Lesser Emeu; but no date has been given, and we do not even know when the painful fact of the total extinction of this most interesting species was made patent to ornithologists; it was, however, not very long ago! The worst is that, so far as positive information goes, no specimens except those at Paris have been preserved; and this is in part a consequence of the general ignorance, until quite recently, of its specific distinction from the Emeu of the Australian main; even Gould, in his monumental work on 'The Birds of Australia,' gives *D. ater* as a synonym of *D. novæ-hollandiæ*. Thus I agree with the last official statement regarding *D. ater*, that of my friend Salvadori in his masterly work, volume xxvii. of the 'Catalogue of Birds in the British Museum,' p. 589: "*Hab.* Decrès or Kangaroo Island, but now extinct, and only known from a single stuffed specimen and the skeleton in the Paris Museum."

Many years ago my attention was called to a mounted skeleton of a Ratite in the old didactic collection of our Museum. It was not in first-rate condition, having some portions replaced by imitations in wood of the missing bones, and was remarkable for its small size. It is a three-toed form, certainly not a *Rhea*, and is labelled "*Casoario*"; but the skull is quite smooth above, there being not the slightest trace of the bony support of the horny helmet, and the bill is *depressed*, not compressed as in the Cassowaries. The specimen was kept apart in a store-room and used by students; every time I saw it I felt that it was a problem to be solved, and yet other and incessant occupations kept me from the attempt. And it was only last spring, during a visit of Mr. Walter Rothschild, on his telling me that he was working out the Cassowaries, that I remembered the enigmatical skeleton. A closer inspection showed us that it was without the least doubt a specimen of the extinct *Dromæus ater*.

Mr. Rothschild asked me to lend him the specimen, and I willingly made an exception to our rules in his favour, as he is engaged on a nearly allied group, while I was also glad to give an opportunity of inspecting so rare a relic to my colleagues of the B.O.U., it being more accessible to them at Tring than in Florence. I sent a note to 'Nature' on the important discovery * and also made a communication on the same subject to the International Ornithological Congress at Paris in June last. My communication to 'Nature' called forth a short, but highly interesting, note from my learned friend Professor Alfred Newton † ; from which we learn that so long ago as 1812 a "*Lesser*" and a "*Great Emea*" were recognized as distinct in Bullock's Museum, and that a specimen of each was preserved in that remarkable collection. Further that when Bullock's Museum was dispersed under the auctioneer's hammer in May 1819 the two birds were bought by the Linnean Society of London for £7 10*s*. and £10 10*s*. respectively. I quite agree with Professor Newton that the "*Lesser Emea*" was most probably a specimen of the unfortunate *D. ater,* and I am surprised that both specimens should have so entirely disappeared that Prof. Newton has in vain endeavoured to trace the smaller. If found and identified according to our suppositions, it would stand as the *fourth* known specimen of *D. ater*. Professor Newton concludes by saying that it may still exist unrecognised; and this lack of recognition of a most distinct species for nearly a century is the corner-stone and basis of the sad history of the Lesser Emeu. I may here remark that even Professor Newton, in whom I hail the most erudite of living ornithologists and the highest authority on lately extinct birds, had up to a recent date not recognised this species. In his excellent 'Dictionary of Birds' (part i. p. 214: London, 1893) he gives us sad news regarding the imminent extermination of the larger Emeu, and tells us how it was totally destroyed in Tasmania and is said to have once existed on the islands of Bass Straits; but he makes no mention of *D. ater,* and gives a note criticizing Latham's distinction of a "*Van Diemen's Cassowary*," which, from what little we know about it, may possibly have been specifically identical with the bird Péron found so abundant on Kangaroo Island.

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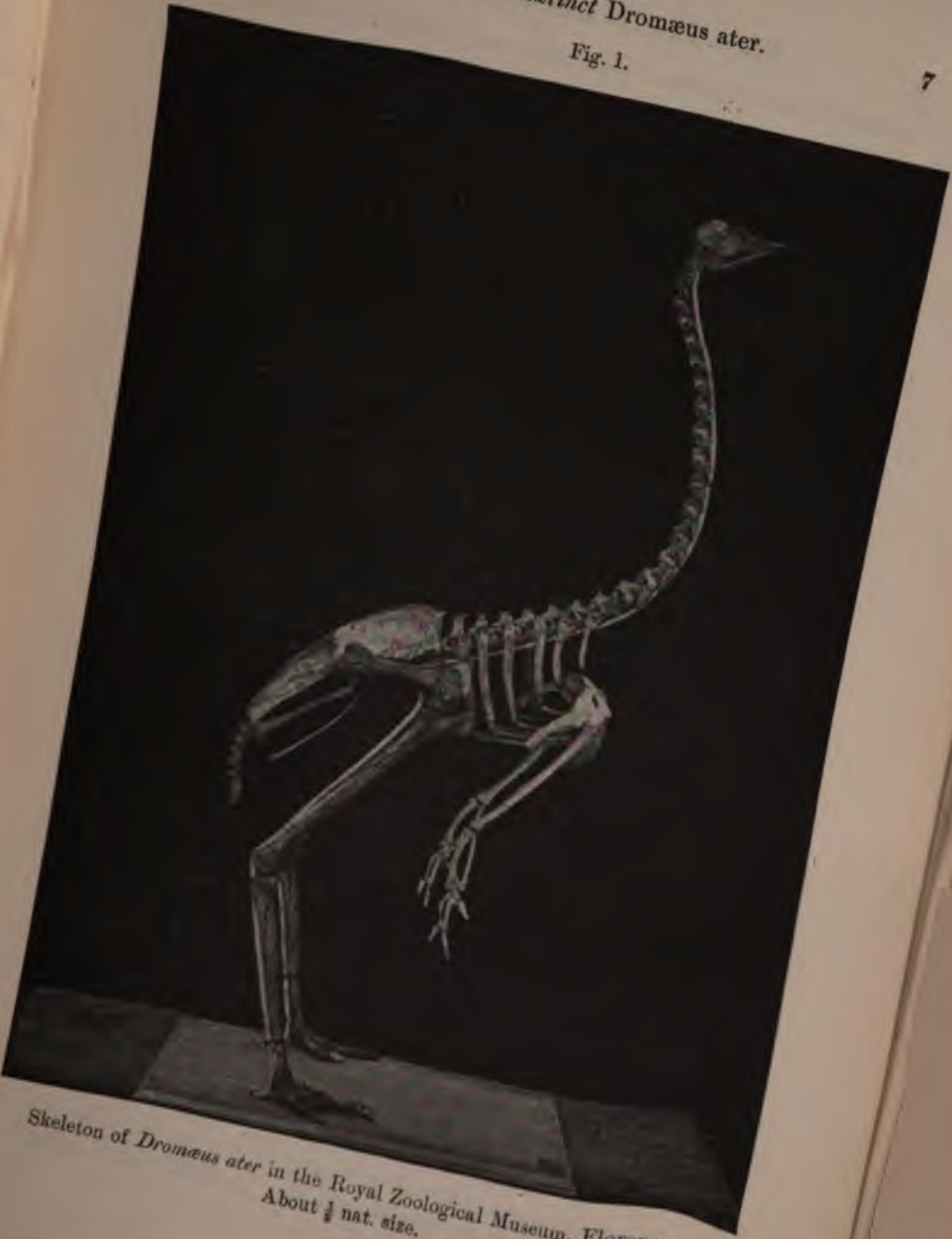
* 'Nature,' vol. lxii. p. 102 (London, May 31, 1900).

† *Tom. cit.* p. 151 (London, June 14, 1900).

But returning to the Florence specimen of *Dromæus ater*, my first care was to try to ascertain how it had come to this Museum. Unfortunately our old catalogues were very badly kept, and although each addition was duly numbered and entered, rarely indeed was any note made of its origin. I easily found out that the skeleton of *D. ater* was first catalogued in 1833 as "*Scheletro del Casuario mas. della Nuova Olanda*," as no. 3623 in the 'Appendice ai Cataloghi di Anatomia Zoologia e Botanica,' vol. ii. p. 37; then as "*Scheletro di Casoario*," no. 467, it was entered in the first 'Catalogo dei Mammiferi' in 1839; and lastly as no. 1673 it got into the 'Catalogo degli Uccelli,' 13th March, 1843. This was not much, and I was pondering over the matter and contemplating the skeleton, which had indeed a centenarian aspect, when I noticed for the first time something written on one of the leg-bones. Cleaning the spot with a brush, I found neatly written, in that clear round hand so common in the earlier years of the 19th century, "*Casoar mâle*"; a further application of the brush brought to light a similar inscription on almost every bone, and made it clear that the skeleton came from France. I finally found out that, besides the well-known fact that the Florence Museum was for a while, shortly after Péron's return, a dependency of the French Imperial Household, an exchange of specimens had taken place during the latter days of Cuvier, between 1825–30, between the Paris and Florence Museums, though no list of those specimens has been found. On due consideration, however, I have very little hesitation in identifying the Florence skeleton as the *third* specimen of *D. ater* brought home by Péron in 1804, which has hitherto been unaccounted for.

This precious skeleton is mounted (see fig. 1, p. 7), and, as I have already remarked, has been badly kept, exposed to dust, and has a soiled and ancient aspect. The following portions

Fig. 1.



Skeleton of *Dromæus ater* in the Royal Zoological Museum, Florence.
About ⅛ nat. size.

are missing and have been replaced by very faithful imitations in wood, evidently copied from those of the perfect mounted skeleton in the Paris Museum; these are the *pectoral arches*, both *wings*, the *patellæ*, two *distal phalanges* in the right foot and *one* in the left, in the hind limbs; besides, in the skull, the *maxillo-jugal* rod is restored in wood, whilst the *palatines*, *pterygoids*, the *vomer*, and the *maxillary processes* of the nasals are missing. The first pair of *cervical ribs* and two *lumbar ribs*, the left one of the first pair and the right one of the second, are also missing.

The right tarso-metatarsal had been fractured, and an irregular anchylosis had been formed during life. The bones are undoubtedly those of a fully adult, I would add of a very old, bird. There are: 20 cervical vertebræ, the last two with movable ribs; 5 dorsal vertebræ, with ribs articulating with the sternum through corresponding sternal ribs; 19 lumbar-sacral vertebræ, the first two with rudimentary or rather short ribs; 8 caudal vertebræ, the last three anchylosed into one mass. The different bones correspond well with the description furnished by A. Milne-Edwards and Oustalet (*op. cit.* p. 65). The height of the Florence skeleton, as it stands, is 1·092 m. I shall now give the separate measurements of the various bones, comparing them with those of the Paris specimen recorded by Milne-Edwards and Oustalet (*op. cit.* p. 66):—

	D. ater, ♂ ad. Florence. m.	*D. ater*. Paris. m.
Length of vertebral column (following curves).	1·040	1·190
" the cranium (occiput to apex of bill).	0·121	0·170
" " (occiput to frontal suture)	0·065	0·080
Greatest width of the cranium	0·058	0·066
Width of the interorbital space..............	0·020	0·029 ?
" " maxillary region	0·035	
" " premaxillary region, 1 centim. from apex	0·016	
Length of the lower jaw	0·111	0·134 ?
" " sternum (mesial line)	0·093	
" " sternum (following curve)	0·120	0·138
Width of the sternum above (straight line) ..	0·087	0·120

	D. ater, ♂ ad. Florence. m.	*D. ater*. Paris. m.
Width of the sternum below (straight line) ..	0·054	0·086
Length of the pelvis (mesial line, curve)	0·270	0·340
From the anterior margin of the acetabulum to anterior iliacal crest	0·083	
From the posterior margin of the acetabulum to the extremity of the ilium	0·127	
From the posterior margin of the acetabulum to the extremity of the pubis	0·135	
From the posterior margin of the acetabulum to the extremity of the ischium..........	0·130	
Width of the pelvis across the posterior margins of the acetabula	0·076	0·092
Width of the pelvis above the acetabula	0·068	0·075
Length of the femur	0·168	0·180
,, ,, tibia	0·300	0·343
,, ,, right fibula (point broken)	0·162	
,, ,, tarso-metatarsal	0·240	0·290
,, ,, external digit (toe)	0·067	0·080
,, ,, median digit	0·106	0·110
,, ,, internal digit (right)	0·070	0·070

Setting aside those measurements which are so apt to vary according to the manner in which they are taken, and which are therefore of little value, what strikes us at once, on looking through the comparative series, is the fact that the Florence specimen—which is an adult, and I may add an old bird and a male (if what is written on almost every bone is correct, and there is no plausible reason for doubt)—is a ***notably smaller bird.*** Let us for examples take a few measurements in which only one method can be used. Thus the Florence *D. ater* has the femur 0·168, tibia 0·300, tarso-metatarsal 0·240, the middle digit of the foot 0·106 in length; whilst in the Paris specimen the corresponding measurements are: 0·180, 0·343, 0·290, 0·110. The only measurement in which both specimens agree is the length of the internal digit (toe) 0·070. In some instances the measurements, if correct, differ enormously; thus the length of the pelvis along the mesial curve, 0·270 in the Florence specimen, is given as 0·340 in the Paris one.

And now I shall conclude this short contribution to the history of a highly interesting bird, which has so utterly disappeared through the ruthless agency of man, by expressing the hope that we may no longer be guilty of such barbaric vandalism, and that the touching appeal written by Gould to the Australians thirty-five years ago for the preservation of the Larger Emeu may be attended to.

Royal Zoological Museum, Florence,
20th August, 1900.

II.—*On a new Species of Blue Wren from King Island, Bass Strait.* By A. J. CAMPBELL (Melbourne).

THERE are no more popular and pleasing little birds than the beautiful Blue Wrens of Eastern Australia. The specimens of this form procured on King Island, Bass Strait, by the Expedition of the Field Naturalists' Club of Victoria (in Nov. 1887), were thought by collectors (myself included) to be *Malurus gouldi*. But I have since obtained a series of skins of Blue Wrens from Tasmania and thence to the Tropics, and find the King Island bird to be quite distinct. Its characteristics are that it is the largest of all, and that it has a decidedly darker shade of blue—brilliant ultramarine being the nearest colour. The tail is very dark blue, while there is also quite a wash of blue on the buffy-white under surface beneath the band of velvety black, and on the outer webs of the primaries. The female is similar to that of *M. cyaneus*, but much larger and slightly darker brown in colour, with a bluish tinge on the feathers of the tail.

Out of compliment to my wife, who has greatly assisted me by transcribing and correcting the draft of a work on the 'Nests and Eggs of Australian Birds,' now in the hands of a British publishing firm, I propose the name *M. elizabethæ* for this new variety; but to be known in the vernacular list as the Dark Blue Wren, in contradistinction to Dr. Sharpe's Silvery (Light) Blue Wren (*M. cyanochlamys*), the most northern form.

The greatest favourites about our camps on King Island were the Dark Blue Wrens, because of their thrilling little songs, and more especially on account of the beauty of the males in their rich plumage of exquisite blue set in velvety black. These birds did not seem at all shy, but boldly displayed their lovely little bodies, with tail erect, on the top of any convenient bush. A nest I took in tussock-grass near our main camp on the Yellow Rock rivulet is similar to those of the other species, while the eggs are the largest of all those of the *Maluri.*

Comparative dimensions in inches of Blue Wrens (males):

	Length.	Bill.	Wing.	Tail.	Tarsus.
M. elizabethæ	5·75	·33	2·1	2·35	1·0
M. gouldi (Sharpe)	5·0	·33	2·05	2·3	·8
M. cyaneus (Ellis)	5·0	·28	2·0	2·2	·8
M. cyanochlamys (Sharpe)	4·75	·3	2·0	2·05	·75

Possibly some ornithologists will be inclined to regard these four birds as referable to one species under different environments. If so, then they will have to show cause why the following should not also be united, namely:—*M. dorsalis* (Lewin) with *M. melanocephalus* (Vig. & Horsf.), *M. melanotus* (Gld.) with *M. callainus* (Gld.), and *M. lamberti* (Vig. & Horsf.) with *M. pulcherrimus* (Gld.), because in these three pairs of birds the individuals have apparently been separated one from another on the base of colouring only, the shade of colouring, however, being constant within their respective geographical areas.

While touching on geographical distribution, I may mention that the western bird, *M. pulcherrimus,* which has not been recorded further east than Central Australia, I have found more than once in the Mallee district of Victoria, where it has a black throat. This bird Gould has figured and described as having the throat and breast "intense indigo-blue," while Dr. Sharpe in the British Museum Catalogue describes these parts as "deep black." Should there really be a *Malurus* in South-west Australia with an indigo throat, then there is also a black-throated variety intermediate between it and *M. lamberti* on the east coast, or else, as I have endeavoured to explain, *M. pulcherrimus* and *M. lamberti* are possibly synonymous.

III.—*Ornithological Notes from South Brazil.*

By H. von Ihering.

In the fourth volume of the 'Revista' of the 'Museu Paulista' lately published will be found some ornithological papers, concerning which I propose to offer a few additional notes.

The "Descripção de Ninhos e Ovos das Aves do Brasil," by Carlos Euler, is a revised and corrected translation of his various papers published in the 'Journal für Ornithologie' from 1862 to 1868. Mr. Euler's observations are certainly amongst the best that have ever been made in Brazil on the life-habits of birds. As the original papers are without any index, and as the nomenclature used is in some cases not easy to understand, and in other cases inexact, this new and revised edition will be useful not only to Brazilian naturalists, but, I hope, to ornithologists elsewhere.

As an "Appendix" to this paper of Herr Euler I have published in the same Journal a list of all the species of birds hitherto observed in the mountainous interior of the State of Rio de Janeiro, especially at Cantagallo and Nova Friburgo.

Since I published this list I have received the second part of Dr. E. Goeldi's 'As Aves do Brasil' (Rio de Janeiro, 1900). I have therefore studied this book with the intention of completing my list by adding to it the names of the species observed by Dr. Goeldi in the Colonia Alpina, Theresiopolis, and not included in my List. These are:—

Orthogonys viridis (*Spix*).
Spermophila gutturalis (*Licht.*).
Chrysomitris icterica (*Licht.*).
Cassidix oryzivora (*Gmel.*).
Cnipolegus comatus (*Licht.*).
Pseudotriccus diops (*Temm.*).
Phyllomyias burmeisteri (*Cab.*).
Ornithion obsoletum (*Temm.*).
Empidonomus varius (*Vieill.*).
Furnarius rufus (*Gm.*).
Lathria plumbea (*Licht.*).
Caprimulgus ocellatus (*Tsch.*).
Nyctibius jamaicensis (*Gm.*).
Colaptes campestris (*Gm.*).
Picumnus temmincki (*Lafr.*).
Ara nobilis (*Linn.*).
Rostrhamus sociabilis (*Vieill.*).

I have not accepted *Arremon silens*, because the bird thus termed by Goeldi seems to be *A. semitorquatus* (observed also by Euler), as is evident from the note on the yellowish colour of its lower mandible.

The number of species of birds of the interior of Rio de Janiero is raised by this addition to 385. It would be useful if European ornithologists would co-operate with me in completing these lists of the local faunas of Rio de Janeiro, S. Paulo, and Rio Grande do Sul, which I have thus attempted to set in order.

My 'Catalogo critico-comparativo dos Ninhos e Ovos das Aves do Brasil,' published in the same volume of the 'Revista' (pp. 191–300), is a synopsis of all that is yet known of the nidification and eggs of Brazilian birds. This is, in truth, a very difficult subject to deal with satisfactorily. All those who have taken up collecting-work in this country have been misled by the native assistants' practice of attributing eggs to birds to which they have no relation whatever. Thus the literature of this subject is full of wrong descriptions and mistakes. For example, such an egg as that of *Ammodromus manimbe* (Sharpe, Cat. B. xii. p. 691) has been described several times, but always wrongly. It is evident that much further work and study, based upon special knowledge, is required to separate the good observations from the doubtful.

The above-mentioned paper is, however, not altogether a compilation, for many new observations are added to what was previously known. Among these may be especially noticed the very singular suspended nest of *Thripophaga sclateri* with two chambers (*op. cit.* p. 246, figs. 20, 21).

Since I published the paper, I have obtained some new eggs from S. Lourenço, Rio Grande do Sul. These may be described as follows:—

CEOPHLŒUS ERYTHROPS (Val.).

The eggs are thin and transparent, of a uniform bluish-white colour, polished, and lustrous. The measurements are 30–31 × 24–25 mm.

CHRYSOTIS VINACEA (Vieill.).

This is an egg of 38 × 30 mm. in dimensions and of oval form. The poles are subequal, the surface is smooth, little polished, and with some scattered deep pores. The nest from which it was taken was a hole situated very high in a colossal Murta-tree. The level of the nest was at 2 m. below the entrance, and to obtain the eggs it was necessary to make a second opening with an axe.

PIONOPSITTACUS PILEATUS (Scop.).

This nest was also in the hollow of a tree with the aperture far above. The eggs are of rounded form, not polished, measuring 26 x 22–22·5 mm.

It may be remarked that in the case of many of the most common and familiar Brazilian birds nothing whatever has been recorded of the nests and eggs. Therefore it may be useful to say a few words respecting the principal authorities on this little-known subject. It is quite natural that the observations and collections that I had made myself should have formed the principal basis of my work. Of other authorities, who have themselves worked in Brazil and published numerous and exact observations, there are two in particular of the highest value—those of Euler, referring to birds of Rio de Janeiro, and those of Herbert Smith on the birds of Matto Grosso, as published by Allen. Of other recent works the most important seems to me to be the egg-catalogue of Nehrkorn. This author has, however, received many incorrect indications, and when the descriptions of material supplied to him are at variance with those of Herbert Smith I always accept the latter's information, as he himself collected the nest, eggs, and birds, and gives their exact dates and localities. Thus Nehrkorn says that the egg of *Cœreba cyanea* is black, and Allen (quoting Smith) says that it is white, with fine reddish spots. The description of Allen is in harmony with my specimens of the eggs of *Dacnis cayana* and with Euler's account of those of *Certhiola chloropyga*. There can be little doubt that Nehrkorn was deceived in this case, as in many others also. Another series of valuable observations which I have utilized are in the publications of Dalgleish and Aplin on Argentine and Uruguayan birds, the greater number of which occur in Brazil also.

To these contributions on Brazilian ornithology I may add, lastly, a reference to one which I published in 1899 ("As Aves do Estado do Rio Grande do Sul") in the 'Annuario do Estado do Rio do Sul' para anno de 1900 (Porto Alegre, 1899). There are here admitted 363 species as occurring in this State. In vol. iv. of the 'Revista do Museu Paulista' I have already been able to add six more species, and amongst them some of special interest, such as *Dacnis cayana* from Novo Hamburgo. It seems really quite doubtful whether many species exist in the State of St. Catharina which are not also represented in the northern part of the State of Rio Grande do Sul. The other additions are *Macropsalis creagra, Asio accipitrinus, Falco fusco-cærulescens* from Novo Hamburgo, and *Porphyriola martinica* and *Gisella iheringi* from S. Lourenço.

I have also lately received from Porto Alegre examples of *Gallinago gigantea*.

S. Paulo, 4th June, 1900.

IV.—*Birds'-nesting Notes from the Transvaal.*

By Alwin C. Haagner.

On the 3rd September, 1899, while strolling along the shore of a dam in this district, I found the nest of a "Quicky" (*Motacilla capensis* L.). It was constructed of coarse grass and lined with feathers; it contained one abnormally coloured egg. This was of a salmon-grey colour, without spots or markings. Proceeding from the dam to a clump of mimosa-trees (*Acacia horrida*), I found an unusual number of nests of the Pied Shrike (*Lanius collaris*). They all contained three eggs, and were, without exception, constructed of a plant with white silvery flowers, which was just then in bloom, and were lined with twine and feathers. I also found several nests of the common Sparrow of this district (*Passer arcuatus*). The eggs of these birds are subject to an enormous amount of variation. I have taken eggs almost black in colour, owing to the profusion and darkness of the blotches, and others from the same nest almost white, the blotches being very light in colour and sparsely distributed. I also found in one of their nests an unknown egg, presumably that of a Cuckoo (*Chrysococcyx cupreus*), which is known locally as the "Diederic." The egg was smaller than that of the real owner of the nest, and of a dirty white, blotched in the form of a ring round the obtuse end with purplish and greyish brown. These Cuckoos are known to generally deposit their eggs in the nests of *Passer arcuatus*; which knowledge, and the fact of seeing and hearing the bird in the vicinity, made me think that it was the parent. These birds have a loud and very plaintive call, which may be described on paper thus—"dee-dee-dee, deederic"! oft repeated. At the same time I found several nests of a Weaver-bird (*Hyphantornis velatus*), one of which contained three eggs: two of a green colour blotched with reddish and purplish brown, and one of a pinkish cream, blotched with the same colours as the green examples.

On the 15th of October I found a clutch of five eggs of a Kestrel (*Tinnunculus rupicoloides*) in a large deserted nest of the Secretary-bird (*Serpentarius secretarius*), which was used by the latter birds three years ago. The nest was built in a mimosa-tree, and was constructed of stems and twigs, some of the thickness of a man's finger. The diameter of the nest across the top must have been 3 feet. In the middle, in a hollow slightly lined with hair, wool, and rags, the five pretty eggs of the Kestrel were deposited. It was a sight to gladden the heart of any ornithologist! The birds being extremely destructive to chickens (when they get the chance), I annexed the whole clutch. The eggs were rather variable in coloration, two being of a cream-coloured ground, thickly spotted and blotched with light and dark brown, and three being of a pinkish hue, both ground-colour and blotches, although the latter were, of course, of a much darker shade. On blowing the eggs, I found that those that were pinkish were fresh, whereas the others were addled; so I conclude that the pink examples would have attained the same shades as the brown had they been in the nest long enough. I may mention that the parent bird flew off the nest when I came up, and I had a good view of her, so that I am sure of the identity.

On the 15th September I found two eggs of a Wader (*Totanus*?)* on the shore of our dam. They were about 15 yards from the water's edge, in an open spot, and were deposited in a hollow in the dry mud, which was heaped up a little all round, and contained a few bits of grass &c. The eggs were nearly embedded in the grass and small mud-clots, and were so admirably concealed by virtue of their wonderful "protective resemblance," that I had to look again for a few seconds every time I took my eyes off the spot. They were of a dark cream-colour, thickly spotted, blotched, and streaked with various shades (light and dark) of brown and slaty brown. Axis 30 mm., diameter 23 mm.

I noticed that the parent bird approached the eggs from the land side, and not from the water: it would have been much more easily detected had it come from the latter direction, whereas its approach from the former was covered by the weeds. The parent birds also possess the advantage of a wonderfully protective coloration.

On the 20th October, 1899, I shot a splendid male specimen of *Nectarinia famosa* (Lay. & Sharpe, B. S. A. p. 306) in the Transvaal, a rare bird here—at least this is the opinion of writers on South-African birds. Dr. Holub, in his 'Beiträge zur Ornithologie Süd-Afrikas,' says nothing of having met with it north of the Cape Colony. This is the second example I have seen here during a residence of four years. The above-mentioned bird was in full and splendid dress.

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* [Mr. Haagner sends us the following description of the *Totanus*, which we are not able to determine:—

"Head and hind-neck brownish grey; mantle and upper and lower back darker brown-grey, the feathers with a dark streak down the middle and edged with a lighter shade; coverts brownish grey, shot with light green (this is, however, only visible in certain lights); secondary and median coverts tipped with white, webs also bordered with white; the two outer primary-coverts reddish brown; throat, abdomen, and under tail-coverts white; breast and fore-neck grey; upper tail-coverts partly white, and a few reddish with black markings. Length $10\frac{1}{8}$"; wing (measured in a straight line from base to tip and along the front edge, when stretched out) $8\frac{1}{4}$"; tail $2\frac{1}{2}$"; culmen $1\frac{3}{16}$". Irides carmine; bill black; legs dirty yellow."—Edd.]

On the 22nd of October my brother shot a female specimen of the Greenshank (*Totanus canescens*) still in winter plumage. They are scarce in these parts. The Bronze Cuckoo (*Chrysococcyx cupreus*) is common hereabouts (Pretoria district). On the 22nd October I shot a specimen in typical and glorious plumage. The bird was really gorgeous in its brilliant and fiery golden (and in some lights bronzy) green colour. Naked skin round eye light scarlet; irides light carmine; culmen and tip of lower mandible horn, remainder of lower mandible light bluish slate-colour; legs and toe-nails brownish black.

After rather a long absence the Hoopoes (*Upupa africana*) have once more made their appearance in our district, and in no small numbers. On October the 22nd I shot three specimens. On the 5th August, 1899, I obtained a specimen of the Bakbakkiri Busk-Shrike (*Laniarius gutturalis*) in interesting plumage. The whole chin, throat, breast, and underparts were of a blackish-yellow colour, without the black and yellow markings on the three former regions. Iris yellowish brown; base of lower mandible light horn-colour, rest of bill black.

Modderfontein,
3rd April, 1900.

V.—*Notes on the Nesting and other Habits of some South-African Birds.* By R. H. Ivy *.

1. Lamprocolius melanogaster (Sw.); Sharpe, Cat. B. xiii. p. 182.

This bird is not common here, and though I have seen several clutches of eggs, I myself have only once found the nest, which was placed in a hole in a tree situated in a deep kloof; the eggs, two in number, were of a light sky-blue, peculiarly roughened and quite unspotted.

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* [Mr. Ivy, a resident at Grahamstown, in the Eastern Province of Cape Colony, has sent me the following notes on the habits of some of

2. PETRONIA PETRONELLA (Licht.); Sharpe, Cat. B. xii. p. 297.

I have found many nests of this species in the decayed centres of the branches of the euphorbia-trees. The bird makes a small opening in the bark, and on a deposit of a few feathers and down in the hollow of the branch lays from three to four dull brown unspotted eggs. It breeds in companies, and the eggs are difficult to obtain, as the branches of the euphorbias are high up above the ground, and though heavy are brittle and rotten, so that the only way of securing the eggs is to cut off the branch at the base. The eggs are very unlike those of the Common Sparrow (*Passer arcuatus*).

3. EMBERIZA FLAVIVENTRIS Bonn. et Vieill.; Sharpe, Cat. B. xii. p. 499.

I have never found the nest of this bird in a low bush or on the ground, though I have seen many hundreds of them. Those I have seen have usually been placed on the outer branches of an acacia-tree, from 6 to 10 feet above the ground. The nest is cup-shaped, about 2¼ inches across, and is composed of fine twigs and roots, and lined with finer material of the same description. The eggs, four or five in number, are never merely spotted, but are scrolled round the obtuse end with purplish brown on a white ground.

4. CINNYRIS VERREAUXI Smith; Gad. Cat. B. ix. p. 75.

This bird, like *C. chalybeus*, was very rare here until about the year 1895, when both became plentiful, and still remain so. In this district it always builds in a place such as no other Sun-bird would select, either in dense shade under

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the birds observed by him in the neighbourhood of that town. His observations on the Cuckoos and Honey-guides seem to me particularly interesting, and to be well worth recording, as so little is known of these birds in South Africa.—W. L. SCLATER.]

heavy bush or sometimes on the side of a krantz or precipice, suspending the nest from a runner or creeper. The fabric is unmistakable at first sight, being more like that of a spider on a large scale than anything else. The inside and central portion, with the sheltering porch, are neat and compact, while it is lined with down-feathers and other fine materials; but around the whole, and often hanging down in a dangling manner for some inches below, is a loose mass of dead leaves and twigs, all interwoven with cobweb. In fact, though the nest be quite new, it often looks like some weather-worn cobweb-structure. The eggs are stated by Stark to be two in number, and mottled and spotted; but according to my experience they are from three to five in number, and of a rich coffee-brown, without markings of any sort. There must be an error somewhere.

5. Upupa africana Bechst.; Salv. Cat. B. xvi. p. 14.

This Hoopoe nests in hollow trees, also in ant-heaps. The eggs, four or five in number, are of a creamy fawn-colour. The nesting-season is from October to January.

6. Irrisor viridis (Licht.); Salv. Cat. B. xvi. p. 17.

I have found this bird nesting in the deserted hole of a Woodpecker in a "yellow-wood" tree (*Podocarpus*), also in euphorbias, in November and December. The eggs are three in number and blue in colour. The bill of the young is much shorter than that of the adult.

On another occasion, at Fish-River Randt, in December 1894, I found this bird making use of a deserted nest of *Parus afer* in a hole in the trunk of a sanga (*Cusconia*). On felling the tree we found three eggs, but only one not broken.

7. Indicator sparrmanni Steph.

Indicator indicator Shelley, Cat. B. xix. p. 5.

On the 4th of November, 1894, I saw one of these birds leave a nest of *Hirundo albigularis*. An examination showed that the nest contained two small white eggs of the Swallow and one large oval egg of the Honey-guide.

8. **Indicator major** Steph.; Shelley, Cat. B. xix. p. 6.

In November 1894, at Blue Krantz, in the Uitenhage division, I noticed one of these Honey-guides being chased by two Drongos, the nest of which we saw on the top of a high euphorbia. We could distinctly make out the transparent egg of the Honey-guide along with the more opaque-white eggs of the Drongo, of which there were three.

9. **Indicator variegatus** Less.; Shelley, Cat. B. xix. p. 7.

In February 1895 I was encamped on the Zwart-kop river, near Springfield, in the Uitenhage district. Here every day one of these birds came up close to our camp, and on six occasions led us to the nests of wild bees among the trees and neighbouring rocks. The Honey-guide would perch on some tree and commence calling "cha-cha-cha," to attract our attention. We followed its lead, talking to the bird all the while, as I was assured by my companions that unless we "kept up the conversation" the bird would leave us: so we answered in such terms as "Pretty Jennie," "Good bird," or "Here we are." When we got to the vicinity of the nest, the bird would not go close, but kept a little distance off, leaving us to search for the exact spot, which was easily found by watching the passing bees *.

10. **Indicator minor** Steph.; Shelley, Cat. B. xix. p. 9.

I have often watched this bird killing bees at a hive, but have never known it lead any one to a nest of wild bees. At Blue Krantz, in October 1898, I was nesting up a gorge, and heard some strange noises in the dense bush overhead. I therefore lay in the shade to watch, thinking it was some small mammal fighting. After some time I saw a Honey-guide fly to a hole in the trunk of a tree and endeavour to enter. It was, however, opposed by a male Barbet (*Melanobucco torquatus*), which was shortly afterwards joined by the female, and the Honey-guide was very soon hustled out, and flew off across the gully, closely followed by the female Barbet, chattering and fighting all the while.

In about five minutes the Honey-guide reappeared, and the same scene took place, and this continued for about an hour. We then shot all three birds with one charge. The Honey-guide fell at our feet, and had an egg protruding from the vent, being covered with skin, probably an evaginated portion of the lower part of the oviduct. Fortunately the egg was unbroken; it was very transparent and the yolk showed through. In the nest itself were two of the usual white eggs of the Barbet, quite fresh.

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* [On this subject see the letter in 'The Ibis,' 1900, p. 691.—Edd.]

11. MELANOBUCCO TORQUATUS (Dumont); Shelley, Cat. B. xix. p. 24.

In November 1893 I saw a pair of these birds boring away at a decayed willow-tree overhanging a stream. Beneath the tree, lying on some damp sand, were four eggs of the same bird, quite fresh and obviously just deposited.

12. TRICHOLÆMA LEUCOMELAS (Bodd.); Shelley, Cat. B. xix. p. 31.

I found a breeding-place of this bird at Walmer, near Port Elizabeth, in November 1892. It was in an old tree-trunk, and was somewhat like that of *Melanobucco torquatus*, being merely a hole about 1½ inch in diameter, running about 2 inches inwards, and then downwards about 6 inches. At the bottom were four white eggs, resting merely on some fragments of rotten wood.

13. COCCYSTES GLANDARIUS (Linn.); Shelley, Cat. B. xix. p. 212 *.

Mr. B. Campbell, of Rocklands, Fish River, brought me, in December 1892, two eggs of this bird. They were of a pale dull blue, with small blackish spots; they had been found in a nest of the Black Crow (*Corvus capensis*), along with three of the typical pink-cream speckled eggs of that bird.

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* [This Cuckoo breeds also in Southern Spain and Northern and North-eastern Africa, where it usually selects a Magpie or Crow's nest to deposit its eggs. The breeding-season in this case is in April or May. It is very remarkable, therefore, to find the same bird in South Africa breeding in December. Do our southern birds migrate as far as the northern breeding-area, and again lay eggs in the spring of the northern hemisphere? or do they only go as far as Central Africa in April, spending our winter-season there and returning south to breed in our southern spring?—W. L. S.]

In the same month of the same year I found a nest of the Red-winged Starling (*Amydrus morio*) placed on a ledge on the face of a krandah, 12 feet from the ground. The nest, which was cup-shaped, and made of fibres and roots, supported on a mud base, contained a young Great Spotted Cuckoo. I kept this bird in a large well-lighted room, feeding it on larvæ and chopped meat. It developed its feathers and began to fly about two weeks after I found it. It resembled the adult bird, except that the grey of the back was much darker and the buff of the chest more intense. The bird became very tame, flying to my shoulder on my calling to it, and often taking journeys outside my room. In April it became very restless, dashing against the walls and windows, and finally died about the middle of the month.

I have seen a pair of old birds of this species with five young all flying together late in February. I believe that the old birds collect their broods previously to migrating.

14. Coccystes jacobinus (Bodd.); Shelley, Cat. B. xix. p. 217.

This bird was seen by Mr. F. Pym to leave the nest of a Bulbul (*Pycnonotus tricolor*) in the Belmont valley, near Grahamstown. On examination the nest was found to contain one Cuckoo's egg (white) and two of the Bulbul's (spotted with pinky red). In November 1894 I found a nest of *Andropadus importunus*, containing two of the usual eggs (white with brown and purple marbling) in addition to five large Cuckoo's eggs. These all together more than filled the small cup-shaped nest, the rightful occupants of which were flitting about in an excited state. Close by three Cuckoos (*Coccystes jacobinus*, *Coccystes serratus*, and *Cuculus clamosus*) were observed, and from the different sizes and shapes of the eggs I believe that all these three Cuckoos had utilized the one tiny nest.

On another occasion I found an egg of this bird in the nest of *Campophaga hartlaubi*, together with a young bird belonging to the host. The egg turned out to be addled; but that it did belong to this Cuckoo was evidenced by the fact that a *Coccystes jacobinus* had been seen to visit the nest.

15. COCCYSTES SERRATUS (Sparrm.); Shelley, Cat. B. xix. p. 223.

In December 1897 I saw one of these birds leave the nest of a Coly (*Colius erythromelon*). The nest contained three eggs of the host (white with a few pinky scratches), together with one egg of the Cuckoo (pure white).

16. CUCULUS SOLITARIUS Steph.; Shelley, Cat. B. xix. p. 258.

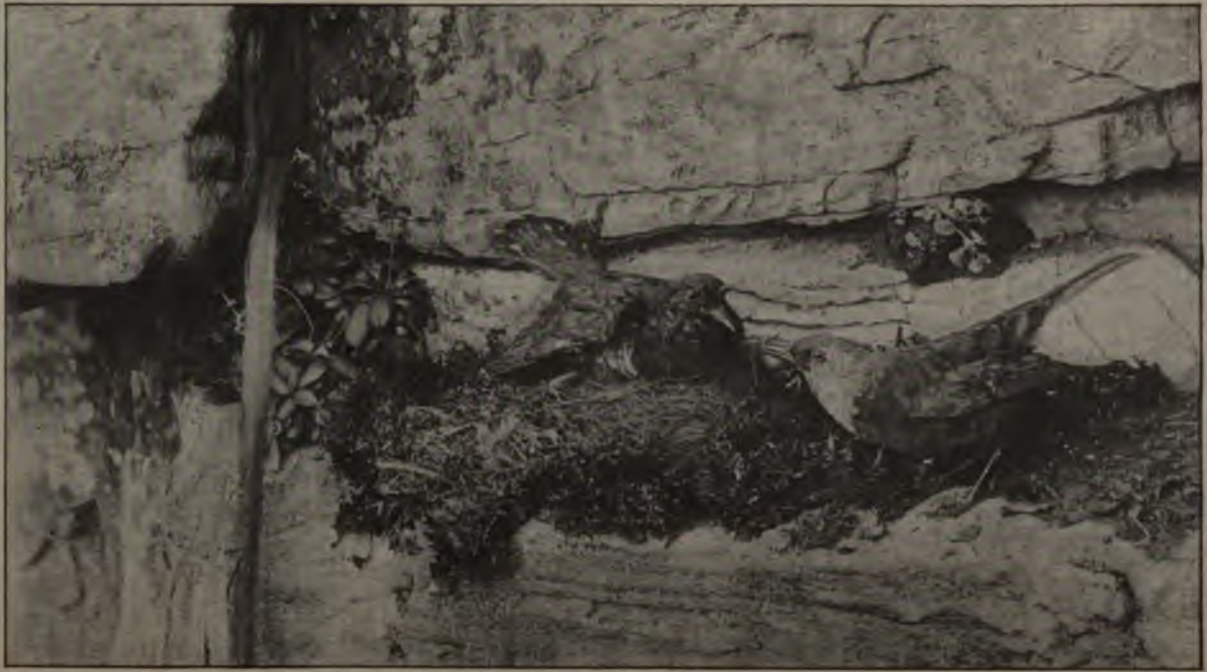
In November 1896 I found an egg of this Cuckoo in the nest of a "Cape Robin" (*Cossypha caffra*), together with two eggs of the latter bird.

In the same month I found a young Cuckoo of this species in the nest of a Rock-Thrush (*Monticola rupestris*) (see fig. 2, p. 25). The nest, which was placed on a ledge of a krantz or cliff, had been extended on either side with a packing of loose moss, so as to prevent the young Cuckoo from upsetting it. One broken egg of the Rock-Thrush lay on the ground below the nest. We waited an hour for the foster-parents, who had flown off on our first approach, to return, but they did not do so, although an adult Cuckoo (*C. solitarius*) flew past.

In December 1897 I saw a pair of Cape Robins (*Cossypha caffra*) flying in attendance on a young *Cuculus solitarius*; they were much more demonstrative than is their usual habit with their own young. The two flew before us for over a mile along a water-cut, while the old Cuckoo kept calling out.

On November the 9th, 1897, I found a nest of *Cossypha caffra* in a neighbouring garden, containing two of the usual pinky-cream eggs, one of which had been deposited only that morning. This nest was only about six inches distant from another, where presumably the same parents had hatched a brood in September. On revisiting the nest next day I

Fig. 2.



Young Cuckoo (*Cuculus solitarius*) in a Rock-Thrush's nest.
(From a photograph.)

found, in addition to the Robin's eggs, which were quite fresh, an egg of *Cuculus solitarius*, partly incubated.

In December 1898 I found another nest of *Monticola rupestris* containing two eggs of the Rock-Thrush and one of *Cuculus solitarius.*

In November 1899 I found a single egg of *Cuculus solitarius* in a nest of the South-African Stone-Chat (*Pratincola torquata*), situated in the wall of an old kraal close to Grahamstown; there were three eggs of the Stone-Chat in the nest.

17. CUCULUS CLAMOSUS Lath.; Shelley, Cat. B. xix. p. 260.

In December 1891 I watched one of these birds for several hours, and finally saw her fly into a thorn-bush close to a picnic party. On going to the bush I found a nest of *Dendropadus importunus* containing two eggs with the usual markings of grey and brown, together with a single large white Cuckoo's egg, slightly incubated, while the others were fresh. I have noticed that both this and the former species (*Cuculus solitarius*) seem to return to the same neighbourhood every year.

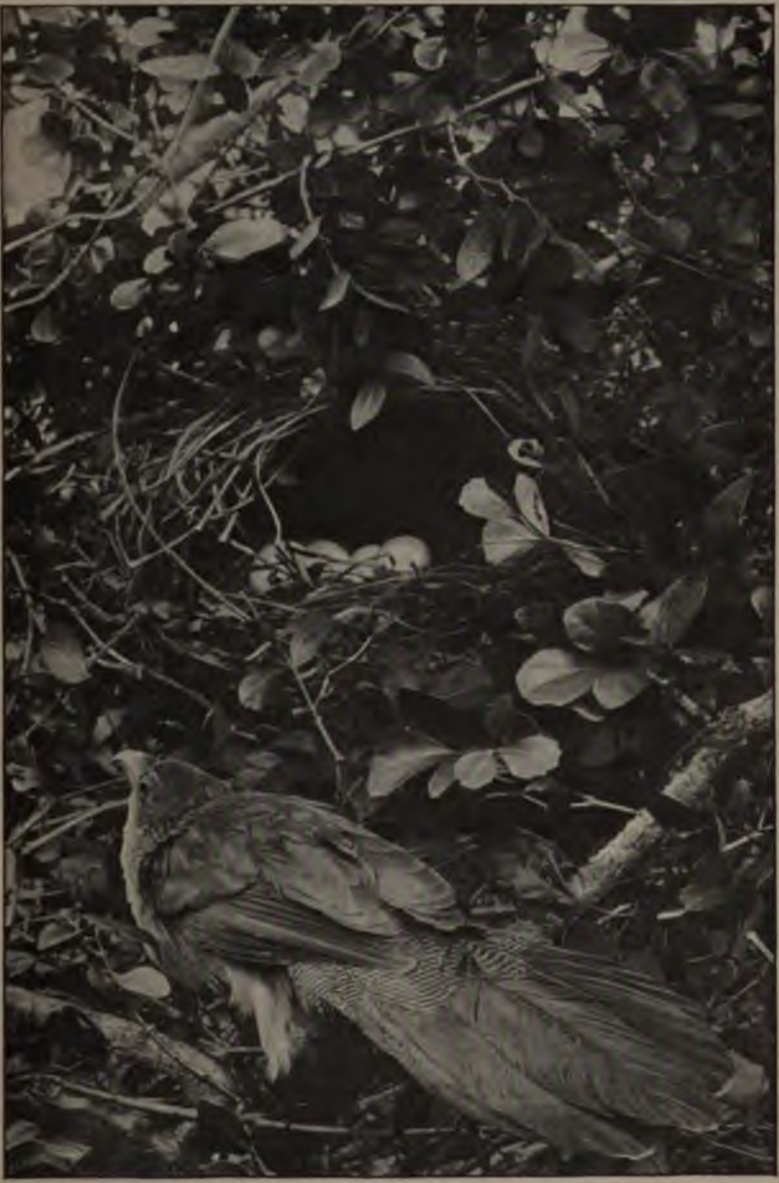
18. CHRYSOCOCCYX SMARAGDINEUS (Sw.); Shelley, Cat. B. xix. p. 280.

This bird is not common in the eastern portion of the Cape Colony; during twenty years' observation I have only seen two, a male near Grahamstown and a female in the Uitenhage division.

19. CHRYSOCOCCYX CUPREUS (Bodd.); Shelley, Cat. B. xix. p. 285.

The Didric Cuckoo is plentiful in the Fish-River district to the north of Grahamstown, and I have obtained specimens there all through the winter. In December 1890 also, while encamped on the Modder River near Bloemfontein, I found this bird very plentiful and easily to be recognized by its plaintive cry. After a long search I observed that one Cuckoo frequented a small acacia-bush, from which it repeatedly called "di-di-dideric," and on passing the bush just before leaving the district I noticed a Red-vented Fly-

Fig. 3.



Nest and eggs of *Centropus natalensis*.
(From a photograph.)

catcher (*Parisoma subcæruleum*) chattering in an excited state, which suggested that an Owl or a snake was close by. An examination at once revealed the presence not only of a puff-adder (which was quickly dispatched), but also of a nest, about 3 feet from the ground, containing three eggs—two white, with faint grey blotches, of the usual type of *Parisoma*; the third larger and white, and showing the yolk through the transparent shell. This, I have little doubt, is the egg of the Didric Cuckoo, and although the identification is not absolute, it is nearly as good as one can expect for a Cuckoo's egg.

20. Chrysococcyx klaasi (Steph.); Shelley, Cat. B. xix. p. 283.

This is one of the commonest Cuckoos in the Albany division. On November the 9th, 1892, I noticed one of these birds flitting about some low bush in the Belmont valley near Grahamstown, and, contrary to its usually shy nature, perching within a few feet of our heads. We searched the vicinity thoroughly, and found several nests, but could not discover the egg of the Cuckoo, although we were certain it was close by. Later in the evening Mr. Pym, my companion, found a nest of the Malachite Kingfisher (*Corythornis cyanostigma*) in the bank of a stream, just below where the Cuckoo was calling; it contained six small round eggs of the usual Kingfisher-type, and one longer egg, beautifully transparent, showing the yolk through the shell. On blowing this egg we found that the yolk was of a much deeper shade of orange than that of the Kingfisher.

21. Centropus natalensis Shelley; Shelley, Cat. B. xix. p. 362.

This bird is not parasitic, but builds a nest in a thick bush. One I found near Belmont, in November 1894, was placed on a platform of dried stems of weeds and overshadowed by a wild vine; it contained five white eggs (see fig. 3, p. 27).

VI.—*On the Specific Validity of* Ploceus megarhynchus *Hume*.

By F. Finn, Deputy Superintendent, Indian Museum, Calcutta.

(Plate I.)

The large Indian Weaver-bird described by A. O. Hume as *Ploceus megarhynchus* has been united by Dr. R. B. Sharpe in the 'Catalogue of Birds,' and by Mr. E. W. Oates in the 'Fauna of British India,' with the eastern form of the Baya Weaver-bird, although this appellation was bestowed by Mr. Hume on what he considered to be a distinct species. Mr. Hume's types, obtained from Kaladoongi, below Naini Tal, are in the British Museum, and a recent examination of these specimens has fully confirmed me in the view that I previously held of the specific distinctness of *Ploceus megarhynchus* and *P. baya*.

In July 1899 I exhibited to the Asiatic Society two living specimens of a large Weaver which I had recently obtained for the Indian Museum from our well-known Calcutta dealer in animals, Mr. W. Rutledge, of Entally. To these birds, considering them to represent an undescribed form of *Ploceus*, I gave the name of *Ploceus rutledgii*, and briefly diagnosed the species as similar to the male of *P. baya* in breeding-plumage, but easily distinguishable by the larger size and the entirely yellow under surface (' Proceedings of the Asiatic Society of Bengal,' July 1899, p. 77). As one of the birds was more stoutly built than the other, and was constantly singing and weaving grass into the wire of the cage, I thought that the two specimens were possibly a pair, the more so as some of the Weavers show very little sexual difference in plumage. As time went on, however, the birds (which, according to Mr. Rutledge's stipulation, I had kept alive) began to change into undress plumage, and in this dress much resembled the corresponding phase of our common Weaver of this district, which, in the British Museum Catalogue, is called *P. atrigula*. Their colour was, however, darker and more uniform, and closely corresponded with that of Mr. Hume's bird. I had noticed that their great size was a point of resemblance to *P. megarhynchus*, and the assumption of a similar plumage left in my mind no doubt as to their identity. To that little-known form I accordingly referred them in a paper entitled "Notes on *Ploceidæ*," published in the 'Journal of the Asiatic Society' (vol. lxviii. pt. ii. 1899). Therein I gave a fuller description of the summer plumage, which the birds had then assumed, taken from them when in full colour, which I quote below:—

"General colour bright yellow (brightest on head and dull and impure on rump), with the following exceptions:—lores, round the eye below, and ear-coverts dark brown; a dull-black patch on each side of the breast before the shoulder; nape and hind neck dull blackish brown; upper back, wings, and tail blackish brown, each feather edged, entirely or externally, with light brown, on the uppermost part of the back with yellow; under wing-coverts dirty white.

"Iris bright light brown; bill black, fleshy white at base; feet dark brownish fleshy, claws blackish horny."

I had a coloured drawing (Plate I. fig. A) of the finer bird made by one of the museum artists, A. C. Chowdhary, and took its measurements as well as I could. The length was about 6½ inches, bill from gape about 0·8, wing about 3, tail about 2·1, and tarsus about 0·95.

The same bird, when out of summer plumage, had its portrait again taken (Plate I. fig. B). Both specimens survived the winter, and in due course reassumed their yellow garb, without the slightest alteration from that which they had worn when I first saw them; so that we may, I think, fairly conclude that captivity had not affected them in any way, and that the plumage is normal and definitely characteristic of the breeding male of the species. I am now quite convinced that both birds are males, as the second specimen has been singing and otherwise comporting itself in a more masculine manner than it did at first.

On visiting the British Museum, when in London last August, I was, by the kindness of Mr. W. R. Ogilvie Grant, enabled to inspect the series of *Ploceus atrigula*, and found that I could easily pick out therefrom the types of Mr. Hume's *P. megarhynchus*, so closely did their plumage correspond with that which I had seen assumed by the living birds above mentioned when in undress. Mr. Rutledge had obtained these from Naini Tal, though no doubt they had not been captured there, but, like the types of *P. megarhynchus*, at a much lower elevation. The deadly nature of the climate of the Terai at the season when these birds are in full feather will, no doubt, account for the fact that the breeding-plumage has been hitherto unknown, since the species of *Ploceus*, at any rate when breeding, are very conspicuous wherever they occur.

It is possible, however, that this particular form is really rare, for the native from whom Mr. Rutledge procured the birds last year did not succeed in getting any to bring down to Calcutta this season. Mr. Rutledge had, moreover, never seen the bird before he received the two specimens which he sold the Museum, and his experience as a dealer in animals extends over forty years. This fact seems to dispose of the suggestion, which has been made to me by an eminent ornithologist, that the bird might possibly have been imported. Moreover, the present bird does not at all agree with the description of any African species, while in its winter plumage, as has been already said, it corresponds very closely with Hume's types of *Ploceus megarhynchus*, which it also resembles in size, as may be judged from the measurements above given.

It seems to me, therefore, obvious that Mr. Hume's *P. megarhynchus* is a good and valid species, easily distinguishable from all other Indian forms of *Ploceus* by the large preponderance of yellow in its coloration when in summer plumage, and to a less extent by its more uniformly stinted winter dress. Its large size is a less important character, as in this respect it is almost, if not quite, equalled by some specimens of the buff-breasted form which in the British Museum Catalogue is called *P. atrigula*. The application of the name *P. megarhynchus* to the latter bird by Mr. E. W. Oates in the 'Fauna of British India' is thus shown to be a mistake, and the question that now remains to be solved is the exact range of the large yellow species, *P. megarhynchus*, for it can hardly be supposed to be confined to the Terai region below Naini Tal.

I append the synonymy and diagnosis of the species :—

PLOCEUS MEGARHYNCHUS. (Plate I.)

Ploceus megarhynchus Hume, Ibis, 1869, p. 357; 1871, pp. 36, 37: id. Stray Feathers, iii. 1875, pp. 153, 406, 407; vi. 1878, p. 400; viii. 1879, p. 106.

Ploceus atrigula Sharpe, Cat. Birds Brit. Mus. vol. xiii. (1890) p. 491 (part.).

Ploceus megarhynchus Oates, Faun. Brit. Ind., Birds, vol. ii. (1890) p. 177 (part.).

Ploceus rutledgii Finn, Proc. A. S. B., July 1899, p. 77.

Ploceus megarhynchus Finn, J. A. S. B. lxviii. pt. ii. pp. 250–252 (1899).

Mas in vestitu æstivo. Maxima ex parte corporis flavus; sed alis caudaque fuscis fulvo marginatis; necnon nuchâ atque maculâ pectorali utrinque sordidè nigris; capitis lateribus fusco lavatis maculam formantibus: rostro nigro, ad basin carneo-albo; iridibus castaneis; pedibus obscurè carneis.

Mas in vestitu hiemali. Brunneus, suprà sparsim fusco-striatus; alis caudâque fuscis fulvo marginatis; gulâ pallidiore, abdomine cum crisso albo: rostro carneo-albo, culmine cum apice nigro.

Long. circ. 6·5 poll.; rostrum a rictu 0·8; ala a carpo 3; cauda circ. 2; tarsus circ. 0·9.

Obs. Similis *P. bayæ* atque *P. atrigulæ*, sed in vestitu æstivo colore flavo in totum corpus infra extenso, et plerumque statura majore facillimè distinguendus; in vestitu hiemali magnis *P. atrigulæ* exemplis persimilis, sed colore obscuriore, atque minus striato dignoscendus.

Habitat in saltibus subhimalayanis infra oppidum "Naini Tal" dictum.

EXPLANATION OF PLATE I.

Ploceus megarhynchus.

Fig. A. Male in summer plumage.

B. The same bird in undress plumage.

Both figures are taken from sketches made at Calcutta, from the living bird, by A. C. Chowdhary.

VII.—*List of Birds obtained in British East Africa.* By F. J. Jackson, C.B., F.Z.S.—Part II.[*] *With Notes by* R. Bowdler Sharpe, LL.D. &c.

(Plates II. & III.)

[In this paper Mr. Jackson continues the account of his collection down to the end of the *Passeres*. The number of purely West-African species which occur in the interior of British East Africa is a very interesting fact, though Mr. Oscar Neumann's expedition had already made us acquainted with the presence of many of them.—R. B. S.]

Fam. Laniidæ.

128. Lanius minor.

Lanius minor Gm.; Reichen. Vög. deutsch. Ost-Afr. p. 157 (1894); Shelley, B. Africa, i. p. 52 (1896).

No. 106. ♂. Ndeva, Teita, April 4, 1898.

This Shrike was very plentiful in pairs, along with *L. collurio* and *L. caudatus*.

No. 68. ♂ ad. Kedong Valley, April 17, 1896. Iris brown; bill and feet black. Not noticed here in January, but now evidently migrating north along with *L. collurio*. Large numbers seen all along the road from Kikuyu to the Ravine.

No. 82. ♀ ad. Swamps east of the Ravine, April 26, 1896.

No. 968. ♂ ad. Nandi, 6500 feet, April 12, 1898. Iris brown; bill black; feet slaty black. Migrating north. Only a few seen about.

129. Lanius excubitorius.

Lanius excubitorius (Prév. et Des Murs); Sharpe, Ibis, 1891, p. 597 (Turquel); Reichen. J. f. O. 1892, p. 39 (Mengo; Bukome); id. Vög. deutsch. Ost-Afr. i. p. 156 (1894); O. Neum. J. f. O. 1900, p. 263.

Fiscus excubitorius Shelley, B. Africa, i. p. 52 (1896).

a. ♀ ad. Ntebi, June 7, 1895. Iris crimson-brown; bill black; feet slate-colour, scaly.

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[*] See 'Ibis,' 1899, pp. 587-640.

Nos. 255, 256. ♂ ♀. Elgeyu, 8700 feet, Aug. 14, 1896. Iris brown; bill and feet black. Plentiful at Njemps.

[The sexes seem to be exactly alike in colour and markings. —R. B. S.]

130. LANIUS HUMERALIS.

Lanius humeralis Stanl.; Sharpe, Ibis, 1891, p. 597; Reichen. J. f. O. 1892, p. 39 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 157 (1894); Sharpe, P. Z. S. 1895, p. 476 (Tuago); Ogilvie Grant, Ibis, 1900, p. 149; Sharpe, P. Z. S. 1900, p. 606.

Fiscus collaris Shelley, B. Africa, i. p. 51, partim (1895).

Lanius collaris humeralis O. Neum. J. f. O. 1900, p. 264.

No. 49. ♀ ad. Ravine, Mau, March 23, 1896. Iris brown; bill black; feet dull slate. Very plentiful at the Ravine in the shambas, where they can command a good view of their surroundings from some bare branch.

Nos. 106, 115. ♂ ad. Ravine, June 20, 23, 1896.

No. 187. ♂ juv. Ravine, July 21, 1896. Iris brown; bill black, with gape yellow; feet slaty black.

No. 232. ♂ juv. Mount Elgon, 5000 feet, Aug. 10, 1899. Iris brown; bill dull brownish black, with lower mandible bluish flesh-colour; feet pale horn-blue.

No. 436. ♀ juv. Ravine, Dec. 11, 1896. Bill brownish black; feet black.

No. 575. ♀ ad. Ravine, March 29, 1897. Very plentiful, building in a small tree nine feet from the ground. Three eggs. Shot on leaving nest.

Nos. 669, ♂ ad.; 670, ♀ juv. Ravine, July 18, 1897.

No. 919. ♂ ad. Nandi, 6500 feet, March 25, 1898.

No. 1149. ♂ juv. Nandi, 6500 feet, May 25, 1898. Iris brown; bill brownish black, lower mandible horn-blue; feet horn-blue.

131. LANIUS MACKINNONI.

Lanius mackinnoni Sharpe, Ibis, 1891, pp. 444, 596, pl. xiii. (Bugemaia); Reichen. J. f. O. 1892, p. 40 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 157 (1894); Shelley, B. Africa, i. p. 52 (1896).

No. 155. ♂ ad. Nandi, 6500 feet, July 6, 1896. Iris brown; bill and feet black.

No. 164. ♀ ad. Nandi, 6500 feet, July 7, 1896. This bird has a patch of russet-brown under the wings, not observable when they are closed.

No. 994. ♀ ad. Nandi, 6500 feet, April 15, 1898. Iris brown; bill and feet brown.

No. 1238. ♂ ad. Nandi, 6500 feet, June 26, 1898. Iris brown; bill and feet black.

[By some mistake the typical specimen described by me in 'The Ibis' for 1891 (p. 596) was recorded as an adult *female*. This was a misprint for "male," and it will be seen that the only bird then known was a male.

Mr. Jackson now sends the female, which is like the male, but differs in one noteworthy respect, in that it has a chestnut patch on the flanks, as in the species of *Fiscus*. Wing 3·5 inches. This character and its white-tipped tail-feathers suggest that it may more reasonably be placed in the latter sub-genus than in *Lanius*, and in this case its name would be *Fiscus mackinnoni*.—R. B. S.]

132. LANIUS COLLURIO.

Lanius collurio Linn.; Sharpe, Ibis, 1891, p. 595; Reichen. Vög. deutsch. Ost-Afr. p. 457 (1894); Hinde, Ibis, 1898, p. 580 (Machako's); O. Neum. J. f. O. 1900, p. 265.

Enneoctonus collurio Shelley, B. Africa, i. p. 53 (1896).

Nos. 104, 105. ♂ ♀. Ndeva, Teita, April 7, 1892. Bill black at tip, horn-blue at base; feet dark slate-colour; iris brown.

This bird was very plentiful in Teita in April 1892, when it was doubtless on its way north to its breeding-grounds. It was also very abundant at Machako's, some 200 miles further north, in April 1889. As I noticed a great number of pairs, I was inclined to think that certain individuals were remaining to breed, especially as the country was interspersed with thick thorn-bushes and well adapted for the purpose.

[I think that it is unlikely that *L. collurio* would breed in East Africa. The birds were probably only on their northward migration. The specimens are in lovely plumage.—R. B. S.]

No. 422. Juv. Ravine, Mau, Nov. 20, 1896. Iris brown; bill fleshy-white horn-colour, with dusky tip; feet dusky horn-blue. The first seen since the beginning of May. These birds are evidently on their way south.

133. Lanius caudatus.

Lanius caudatus Cab.; Reichen. Vög. deutsch. Ost-Afr. p. 156 (1894); O. Neum. J. f. O. 1900, p. 264.

Fiscus caudatus Shelley, B. Africa, i. p. 52 (1896).

No. 107. ♂. Ndeva, Teita, April 7, 1893.

This Shrike is very common along the coast, west to Kilimanjaro, and north to Machako's. Although I have many times found its nest with young, I have never seen the egg. It appears to breed any time from April to September. The nest is not unlike that of the Common Blackbird, and is generally found in a thick thorn-bush from 5 to 10 feet from the ground.

134. Dryoscopus funebris.

Dryoscopus funebris (Hartl.); Sharpe, Ibis, 1891, p. 598 (Nroni); Reichenow, J. f. O. 1892, p. 38; id. Vög. deutsch. Ost-Afr. p. 162 (1894); Sharpe, P. Z. S. 1895, p. 478 (Sillul); Shelley, B. Africa, i. p. 54 (1896); Ogilvie Grant, Ibis, 1900, p. 147.

Laniarius funebris O. Neum. J. f. O. 1899, p. 409; id. op. cit. 1900, p. 271.

a. Ad. Kinani.

No. 71. ♂ ad. Kibwezi, 3000 feet, March 31, 1892.

This is another bird which is confined to the very dense bush, and, though rarely seen, is decidedly plentiful. It has a peculiar soft musical call, which, though difficult to describe, when once heard cannot be mistaken.

135. Dryoscopus suahelicus.

Dryoscopus cubla (Shaw); Reichen. Vög. deutsch. Ost-Afr. p. 164 (1894).

Dryoscopus cubla suahelicus O. Neum. J. f. O. 1899, p. 414; id. op. cit. 1900, p. 271.

No. 68. ♂ ad. Kibwezi, 3000 feet, March 18, 1892. Iris crimson; feet horn-blue; bill black.

136. Dryoscopus major.

Laniarius major Hartl. Beitr. Orn. W.-Afr. p. 51, pl. 5; Shelley, B. Africa, i. p. 54 (1896).

Dryoscopus albifasciatus Sharpe, Ibis, 1891, p. 598 (Mt. Elgon).

Dryoscopus major (Hartl.); Reichen. J. f. O. 1892, p. 38 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 163 (1894: Usegua N'guru).

Laniarius æthiopicus major O. Neum. J. f. O. 1899, p. 406; op. cit. 1900, p. 270.

No. 44. ♂ ad. Ntebi, Oct. 2, 1895.

Nos. 92, 93. ♂ ♀ ad. Ravine, June 17, 1896. Iris dull crimson; bill black; feet horn-blue.

Nos. 161, 162. ♂ ♀ ad. Nandi, 6500 feet, July 8, 1896. For the most part in pairs in thick bush.

No. 216. ♂ ad. Nandi, 8700 feet, Aug. 3, 1896. Bill black, base horn-blue.

Nos. 319, 320. ♂ ad. Kamassia, 6000 feet, Aug. 23, 1896.

No. 402. ♀ ad. Ravine, Oct. 8, 1896.

No. 555. ♂ ad. Ravine, March 25, 1897. Plentiful and always in pairs. In thick bush.

No. 656. ♀ ad. Ravine, July 16, 1897.

No. 880. ♂ ad. Nandi, 6500 feet, Feb. 17, 1898.

No. 944. ♂ ad. Kakamega, Ichuku river, April 7, 1898.

No. 1080. ♀ ad. Nandi, 6500 feet, May 7, 1898.

This fine Shrike is almost invariably found in pairs, and either in or on the outskirts of thick bush. Its cry may be heard throughout the day in the localities it frequents, but can scarcely be considered a call-note in the true sense of the word, as the two birds are nearly always quite close together when they give utterance to it. It has a beautiful bell-like note. The cock bird repeats it three times, the hen only once. I have several times watched them in the act of calling.

No. 1081. ♀ ad. Nandi, 6500 feet, May 7, 1898.

No. 1215. ♂ ad. Naudi, 6500 feet, June 17, 1898.

No. 1264. ♂ ad. „ „ July 3, 1898. Iris brown; bill dull slaty black; feet bright horn-blue. Evidently a bird of the year, hatched probably in March or April.

137. DRYOSCOPUS PRINGLII.

Dryoscopus pringlei Jackson, Bull. B. O. C. iii. p. iii (1893); Shelley, B. Africa, i. p. 55 (1896); O. Neum. J. f. O. 1899, p. 416.

No. 5. ♂ juv. Mauungu Wilderness, Dec. 29, 1891.

No. 91. ♂ ad. Between River Tsavo and Kufumika, April 5, 1892. Iris crimson; bill black, base of lower mandible horn-blue; feet horn-blue.

Both these birds were shot in the thick thorny wilderness so common in East Africa. *D. salimæ* and *D. cubla* are more confined to the thick evergreen forests and are very partial to mango and other big trees. *D. pringlii* is such a small species that it cannot well be confounded with either *D. gambensis* or *D. cubla*.

[Although the character given by Mr. Jackson as to this species being very like *D. gambensis* but much smaller does not suggest that the two birds are very distinct, yet, on comparison, they will be found to be so, and the female bird is quite different from the hen of *D. gambensis*. It is uniform light ashy brown above, with whitish edgings to the wing-coverts and quills; the lores are whitish, the ear-coverts ashy brown; cheeks and throat white, as also the abdomen; the fore-neck, breast, and sides of the body washed with light ochreous; thighs ashy brown; under tail-coverts and under wing-coverts white. Total length 5·6 inches, culmen 0·65, wing 2·6, tail 2·3, tarsus 0·8.

The specimen here described was obtained by Mr. F. Gillett on the Webi Shebeli River on the 5th of September, 1894, and is, I believe, the only female known. I should not be surprised to find that *D. pringlii* is the same as Hartlaub's *D. hamatus* from Somali-land (P. Z. S. 1863, p. 106), which has never been rediscovered since Speke procured the first specimen at Kazeh.—R. B. S.]

138. **Dryoscopus nyanzæ.**

Dryoscopus, sp. incogn., Sharpe, Ibis, 1891, p. 598.

Dryoscopus malzacii nyansæ O. Neumann, J. f. O. 1899, p. 412; op. cit. 1900, p. 272.

Dryoscopus gambensis (nec Licht.); Reichen. J. f. O. 1892, p. 37.

a. ♂ ad. Ntebi, May 4, 1895.

No. 40. ♀ ad. Ntebi, Oct. 1, 1895.

b. ♂ ad. Busoga, Nov. 15, 1894. Iris orange; bill black; feet horn-blue.

No. 192. ♀ juv. Ravine, July 23, 1896.

No. 201. ♂ ad. Ravine, July 25, 1896.

No. 666. ♂ ad. Ravine, July 18, 1897.

No. 667. ♀ ad. Ravine, July 18, 1897. Bill black; lower mandible horn-blue; feet slate-colour; iris crimson-orange.

No. 695. ♂ ad. Ravine, July 25, 1897. Feet greenish slate.

No. 699. ♀ ad. Ravine, July 27, 1897.

No. 1240. ♀ ad. Nandi, 6500 feet, June 26, 1898. Iris bright orange, fading into yellow round the pupil. Scarce.

No. 1262. ♂ ad. Nandi, 6500 feet, July 3, 1898. Stomach contained beetles, for which the bird hunts in the thick foliage of trees.

[As Mr. Oscar Neumann points out, while the males of *D. gambensis* can scarcely be distinguished in the various parts of Africa in which they occur, there are very decided differences in the female birds. Thus the forms must be determined on the females alone, and in this connection we find that they can be separated into two sections distinguished by the colour of the head—*D. gambensis* and *D. congicus* having a grey head and a grey or light brown back, while *D. malzacii*, *D. nyanzæ*, and *D. erythreæ* all have brown backs and blackish-brown heads very slightly darker than the mantle; the three last-named species also have decidedly smaller bills. The bird which I call *D. congicus* is from Ste. Antoine and Condé on the Lower Congo (specimen *m* of Gadow's Cat. B. viii. p. 147). The Condé specimen is in the Shelley Collection, and Mr. Neumann thinks that both will turn out to be females of *D. angolensis*. This cannot, however, be the case, for they have *black* legs. The heads are dull slaty grey, contrasting with the brownish colour of the back, from which the lower back and rump scarcely differ. The chief distinction, however, lies in the deep cinnamon-colour of the under surface, the wing-coverts and quills being also edged with cinnamon. The black mantle of the male generally shows some traces of brownish edges to the feathers. *D. gambensis* is also a large-billed form, the female being light ashy brown above, with the head scarcely greyer; the edges to the wing-coverts and the tint of the under surface are both very pale cinnamon, quite different from the rich colour of *D. congicus*. The male of *D. gambensis* seems always to have the mantle glossy blue-black like the head.

D. malzacii is very like *D. gambensis*, but certainly has a smaller bill, and the female is brown above with a darker brown or blackish head.

D. erythreæ of Neumann belongs also to the small-billed group, but has a decidedly darker female with a blacker head and the under surface of a deeper ochreous tint. To this race I believe all Lord Lovat's specimens belong (*cf.* Grant, Ibis, 1900, p. 147), but Esler's collections from Bogos-land apparently comprise examples of both *D. erythreæ* and *D. malzacii*. I notice also that Lord Lovat's birds were collected in February, whereas the others (*D. malzacii*) were obtained in July. They are decidedly paler underneath, and appear to me to be in worn plumage, which may account for the lighter brown of the upper surface, and I doubt very much if these two races can be separated.

In *D. nyanzæ*, which is the third small-billed form, the female is of a rich colour below, deep ochreous like the hen of *D. gambensis*, but not so cinnamon as *D. congicus*. The back of the male generally shows a wash of brown on the mantle. Two males from Ntebi and Busoga have rather larger bills than some of the others and show an approach to *D. congicus*.—R. B. S.]

139. **Dryoscopus nandensis.** (Plate II. fig. 1.)

Dryoscopus nandensis Sharpe, Bull. B. O. C. xi. p. 28 (Nov. 1900).

Similis *D. angolensi* et pedibus rubentibus; pileo nigro, schistaceo induto, et rostro conspicuè minore distinguendus. Long. tot. 6·5 poll., culm. 0·8, alæ 3·3, caudæ 2·75, tarsi 0·9.

No. 1253. ♂ ad. Nandi, 6500 feet, June 29, 1892. Iris bright claret-colour, with fine inner ring of bright crimson; bill brownish black, with rather paler tip and edges horn-white; feet flesh-colour, with a bluish shade. The first example seen. It was creeping about in the thick foliage of a tall tree.

[This species is very closely allied to *D. angolensis*, of which we have the type in the British Museum. It differs, however, in its much smaller bill, which is horny white at the tip, and it is of a somewhat clearer pearl-grey below, with a white throat and abdomen. Mr. Oscar Neumann, in his revision of the Laniarians (J. f. O. 1899, p. 410), has placed *D. angolensis* in close proximity to *D. gambensis* and its allies. It seems to me, however, that it belongs to a different section of the genus distinguished by the reddish legs. The female, which I have not seen, is described by Dr. Reichenow (J. f. O. 1896, p. 26) as having the "Füsse hellrötlich."—R. B. S.]

140. **Dryoscopus luehderi.**

Laniarius luehderi Reichenow, J. f. O. 1874, p. 101; Shelley, B. Africa, i. p. 53 (1896); O. Neum. J. f. O. 1899, p. 400.

Dryoscopus coronatus Sharpe, P. Z. S. 1874, p. 205, pl. xxiii. fig. 2.

Laniarius castaneiceps Sharpe, Ibis, 1891, pp. 445, 598; Shelley, B. Africa, i. p. 53 (1896).

Nos. 986, 987. ♂ ♀ ad. Nandi, 6500 feet, April 13, 1898. Iris dull brown; bill black; feet horn-blue. First seen. In thick bush in forest-belts.

No. 990. ♂ ad. Nandi, 6500 feet, April 15, 1898.

No. 1009. ♀ ad. „ „ April 19, 1898.

No. 1102. ♂ ad. Nandi, 6500 feet, May 12, 1898. Iris dark crimson-brown.

No. 1142. ♂ ad. Nandi, 6500 feet, May 24, 1898.

[On comparing Mr. Jackson's series with the type specimen of *D. coronatus* from Gaboon, I am unable to find any differences between them, and my *L. castaneiceps*, founded on two young birds, must be suppressed.

The female is similar in colour to the male, and a pair measure as follows :—

♀. Total length 7·4, culmen 0·85, wing 3·4, tail 2·9, tarsus 1·2.

♂. Total length 7·4, culmen 0·9, wing 3·45, tail 3·0, tarsus 1·2.—R. B. S.]

141. LANIARIUS ERYTHROGASTER.

Laniarius erythrogaster (Cretzschm.) ; Sharpe, Ibis, 1891, p. 599 (Turquel) ; Reichen. J. f. O. 1892, p. 38 (Bussisi ; Itale) ; id. Vög. deutsch. Ost-Afr. p. 159 (1894) ; Shelley, B. Africa, i. p. 54 (1896) ; Ogilvie Grant, Ibis, 1900, p. 148 ; O. Neum. J. f. O. 1899, p. 407 ; id. op. cit. 1900, p. 270.

a. ♂ ad. N'tebi, May 31, 1895.

Nos. 254, 263. ♂ ad. Elgeyu, 3700 feet, Aug. 14, 15, 1896. Iris straw-colour ; bill and feet black. Plentiful in the Molo valley.

142. LANIARIUS CHRYSOGASTER.

Laniarius chrysogaster (Sw.) ; Sharpe, Ibis, 1891, p. 600.

Laniarius sulphureipectus (Less.) ; Reichen. Vög. deutsch. Ost-Afr. p. 159, fig. 72 (1894).

Malaconotus sulphureipectus Shelley, B. Africa, i. p. 56 (1896).

Cosmophoneus sulphureopectus suahelicus O. Neum. J. f. O. 1899, p. 395 ; id. op. cit. 1900, p. 269.

No. 27. ♂. Kibwezi, 3000 feet, March 4, 1892. This bird is confined to the dense bush, and though fairly plentiful on Manda and Lamu islands, in Witu and other suitable places, it is rarely seen.

a. Ad. Ukambani, Oct. 1894.

No. 287. ♂ ad. Njemps, 3700 feet, Aug. 18, 1896. Bill black; feet horn-blue; iris brown.

No. 288. ♂ ad. Njemps, 3700 feet, Aug. 18, 1896.

[Mr. Oscar Neumann (J. f. O. 1899, p. 395) has divided this well-known species into four races. The typical *Cosmophoneus sulphureipectus*, according to him, is from West Africa, has a *yellow* forehead, a well-developed yellow superciliary streak, and *black* ear-coverts. This last is the only character of any value in Mr. Neumann's diagnosis.

The South-African form (*C. similis*) is supposed to differ in its orange-coloured frontal band and in having the ear-coverts black or greyish black. The latter character again holds good only to a certain extent. The larger and more developed breast-spot, on which Mr. Neumann relies, is not a character of importance, a Fantee bird not being distinguishable in this respect from a Swazi-land example. The orange-colour on the edges and tips of the tail-feathers is also a character found in West- and South-African specimens. These last features are not of specific value, and seem to me to depend upon age; the older birds having more orange on the frontal band and breast and more of an orange tint on the tail.

The East-African form (*L. suahelicus*) has, according to Mr. Neumann, a yellow frontal band, while the yellow superciliary streak extends only a little above the eye, and the ear-coverts are grey. After comparing Mr. Jackson's series with a number of specimens from different parts of South Africa, I must confess that I have failed to discover the slightest cause for separating the two forms. A Landana bird also seems to be *L. similis* and not true *L. sulphureipectus*, nor do I believe *L. modestus*, Bocage, to be different (*cf.* Neumann, *t. c.* p. 396).—R. B. S.]

143. LANIARIUS APPROXIMANS.

Laniarius approximans (Cab.); Reichen. Vög. deutsch. Ost-Afr. p. 159, fig. 71 (1894); Jackson, Ibis, 1898, p. 137 (Witu).

Malaconotus approximans Shelley, B. Africa, i. p. 57 (1896); O. Neum. J. f. O. 1899, p. 392; id. op. cit. 1900, p. 269.

No. 338. ♀ ad. Kamassia, 6500 feet, Aug. 24, 1896. Bill black; feet horn-blue; iris bright yellow.

144. NILAUS MINOR.

Nilaus minor Sharpe, P. Z. S. 1895, p. 479; Shelley, B. Africa, i. p. 53 (1896); O. Neum. J. f. O. 1900, p. 273.

No. 40. ♀. Kibwezi, 3000 feet, March 9, 1892.

No. 56. ♂. „ „ March 15, 1892. Bill black, base of lower maudible horn-blue; feet horn-blue; iris brown.

These were the first and only two specimens I saw in 1892. On March 6th I found them building their nest, so gave them six days to allow them to finish building and lay eggs. On the 9th I shot the female as it left the nest, but did not succeed in getting the male till the 15th, although it never left the locality, and constantly kept up its call, which was easily recognizable. The nest, which is about 3 inches in diameter, is neatly made of lichens, and lined with fibre, and was placed on the branch of an acacia tree at a height of 25 feet. It is not unlike a Chaffinch's. The eggs, two in number, are of a grey stone-colour, rather sparingly spotted with black, with larger spots of very dark brown shading into the ground-colour on their edges.

Nos. 367, 368. ♂ ad. Njemps, Sept. 19, 1896.

[This species differs from *N. capensis* in having the median dorsal streak tinged with fawn-colour and not so white. The lower back is white in the centre, slightly varied with black-edged feathers and having the sides mostly black. In *N. capensis* the lower back is entirely ocellated with black-edged white feathers, and these are characteristic of the female also. In *N. minor* the wing is scarcely more than 3 inches long, though one of Mr. Jackson's specimens from Njemps has the wing 3·2. The British Museum also contains a specimen of this small Bush-Shrike from Teita, presented by Sir Robert Harvey.—R. B. S.]

145. NICATOR CHLORIS.

Nicator chloris (Less.); Shelley, B. Africa, i. p. 56 (1896); Sharpe, Bull. B. O. Club, vi. p. xlviii (1897 : Ntebi).

a. ♂ ad. Ntebi, Aug. 3, 1895.

b. ♂ ad. „ Aug. 9, 1895.

c. ♂ ad. „ Aug. 15, 1895. Iris brown; bill dusky black; feet pale horn-blue.

d. ♂ ad. Busoga, Nov. 16, 1894. In thick bush.

146. TELEPHONUS SENEGALUS.

Telephonus senegalus (L.); Sharpe, Ibis, 1891, p. 601; Reichen. Vög. deutsch. Ost-Afr. p. 158 (1894); Shelley, B. Africa, i. p. 55 (1896); O. Neum. J. f. O. 1900, p. 267.

No. 33. ♂. Kibwezi, 3000 feet, March 7, 1892. Irides blue; bill black; feet pale horn-blue.

This bird is very plentiful, and is one of the few species in East Africa that has a song. It sings on the wing, and much resembles the Tree-Pipit in this respect. It may often be seen taking a short flight 200 feet or so in the air, and descending with an undulating jerky motion.

Nos. 696, 697. ♂ ad. Ravine, Mau, July 26, 1897. Bill black; feet pale horn-blue; iris dark slaty blue.

147. TELEPHONUS EMINI.

Telephonus minor (nec Reichen.); Sharpe, Ibis, 1891, p. 600.

Telephonus emini Reichen.; Vög. deutsch. Ost-Afr. p. 159 (1894: Bukoba); Shelley, B. Africa, i. p. 55 (1896).

Telephonus australis emini O. Neum. J. f. O. 1900, p. 266.

a. Ad. N'tebi, June 6, 1895. Bill black; feet horn-blue; iris brown.

Nos. 91, 99. ♀ ad. Ravine, Mau, June 17, 19, 1896. Iris brown, with inner ring of stone-grey.

No. 273. ♀ ad. Elgeyu, 3700 feet, Aug. 16, 1896. Very plentiful. Sings on the wing like a Tree-Pipit.

No. 281. ♂ ad. Elgeyu, 3700 feet, Aug. 17, 1896. Nest of roots, not unlike that of a Bullfinch, two feet from the ground, in dead bush, surrounded by long grass. Eggs two.

No. 326. ♂ ad. Kamassia, Aug. 26, 1896. Iris brown, the lower half only with inner ring of blue-grey; bill black; feet horn-blue.

No. 346. ♂ ad. Ravine, Mau, Aug. 30, 1896. Iris stone-grey.

No. 396. ♂ ad. Kamassia, Sept. 29, 1896.

No. 720. ♂ ad. Lake Naivasha, Aug. 5, 1897.

No. 803. ♂ ad. „ „ Aug. 23, 1897.

No. 858. ♀ ad. Nandi, 6500 feet, Feb. 13, 1898. Iris brown, with an inner ring of dull grey.

No. 972. ♂ ad. Nandi, 6500 feet, June 13, 1898. Iris dark brown, with an inner ring of pale brown.

No. 973. ♂ ad. Nandi, April 12, 1898.

No. 984. ♂ ad. „ April 18, 1898.

No. 1084. ♀ ad. „ May 9, 1898. Iris brown; bill black, the lower mandible slaty blue.

No. 1203. ♂ ad. Nandi, June 11, 1898.

No. 1208. ♀ ad. „ June 13, 1898.

No. 1210. ♀ ad. „ June 14, 1898. Iris brown, with inner ring of dark lilac.

[*T. emini* is a very dark form of *T. trivirgatus* (Smith) of South Africa, and is distinguished by its dark greyish flanks (slightly tinged with buff). I consider Colonel Manning's specimens from Karonga in Nyasa-land to be also *T. emini*.

T. minor is a pale little bird, which the British Museum has from Tete on the Zambesi and from the Usambara Hills, obtained in both places by Sir John Kirk. It has light flanks and under tail-coverts very pale fawn or creamy buff, and has scarcely any grey on the chest, so that the throat and centre of the body appear purer white than in any of the allied races. *T. minor*, according to Dr. Reichenow (Vög. deutsch. Ost-Afr. p. 158) has a wide range in East Africa, but Mr. Jackson has never met with it.—R. B. S.]

148. TELEPHONUS JAMESI.

Telephonus jamesi Shelley; Sharpe, Ibis, 1891, p. 601; id. P. Z. S. 1895, p. 479; Shelley, B. Africa, i. p. 56 (1896); Jackson, Ibis, 1898, p. 138 (Witu).

No. 89. ♂. Ngavumga Ngomeni-Tsavo, April 4, 1892.

This is the first specimen that I have procured so far south, and I am inclined to think that the Rivers Tsavo and Sabaki are probably its southern limit. At Lamu it is very common, and it is also very plentiful in the bushy country of Karakan, a district of the Sük country which is in the same latitude as Somali-land, where it was first obtained. At Lamu I once found a nest with two young in it. It was placed in a small bush, quite exposed to view, and was built of small twigs, fibres, &c., being not unlike that of our Bullfinch.

149. TELEPHONUS MINUTUS.

Telephonus minutus Hartl.; Reichen. J. f. O. 1892, p. 39 (Mengo); id. Vög. deutsch. Ost-Afr. p. 159 (1894); Ogilvie Grant, Ibis, 1900, p. 146.

Bocagia minuta Shelley, B. Africa, i. p. 55 (1896).

No. 140. ♀ ad. Nandi, 6500 feet, July 2, 1896. First seen. Bill black; feet slate-colour; iris pink.

No. 640. ♀ ad. Nandi, May 6, 1897. Feet dark horn-blue. Rare. Nest and two eggs. Nest woven on to three dead stalks like Reed-Warbler's and made entirely of rootlets and cobwebs.

No. 969. [♀ ad.] Nandi, 6500 feet, April 12, 1898.

No. 1024. ♀ ad. „ „ April 22, 1898. Feet dusky horn-blue. Is very partial to marshes and is rarely seen far from them.

No. 1054. ♀ ad. Nandi, 6500 feet, May 2, 1898.

No. 1113. ♀ ad. Kakamega, May 15, 1898.

No. 1205. ♂ ad. Nandi, 6500 feet, June 12, 1898. Breeding. Nest, containing two eggs, placed in a small bush in a swamp. Very much exposed.

Fam. PRIONOPIDÆ.

150. PRIONOPS POLIOLOPHUS.

Prionops poliolophus Fischer & Reichen. J. f. O. 1884, p. 180 (Lake Naivasha); Reichen. Vög. deutsch. Ost-Afr. p. 162 (1894) (Lake Naivasha); Shelley, B. Africa, i. p. 49 (1896); O. Neum. J. f. O. 1900, p. 275.

No. 65. ♀ ad. Kedong Valley, April 17, 1896. Iris bright yellow; eyelids dark slate-colour; bill black; feet orange. Obtained out of small flock.

No. 66. ♂ juv. Kedong Valley, April 17, 1896. Feet pale orange.

[A very distinct species. It has a long crest like *P. plumatus*, but composed of slaty-grey plumes. The fore part of the crown and sides of face are pearly grey, recalling *P. talacoma*, and the white greater coverts and white-edged secondaries are also like those of *P. talacoma*, and differ from the entirely black wings of *P. cristatus*.

One of Mr. Jackson's specimens is a young bird. It is much more dingily coloured than the adult, the general colour of the upper surface disclosing a tinge of brown; the white on the wing-coverts and secondaries is not quite so much extended; the head is of a dingy grey; and the crest-feathers are shorter and of a dull slate-colour.—R. B. S.]

151. SIGMODUS GRACULINUS.

Sigmodus retzii graculinus (Cab.); O. Neum. J. f. O. 1900, p. 274.

a. Ad. Samia, Kavirondo, Nov. 1894.

[Mr. Oscar Neumann (Orn. MB., June 1899, pp. 89–91) has given a review of the genus *Sigmodus*, and recognises the following races of the *S. retzii* group:—

Sigmodus retzii nigricans.
" " (typical).
" " *intermedius.*
" " *tricolor.*
" " *graculinus.*

Of the first four forms with a white band on the primaries below, the British Museum seems to have the true *S. retzii* from Damara-land (*cf.* Sharpe, Cat. B. iii. p. 324). From the Congo (*Sharpe Coll.*) and from Humbe (*Shelley Coll.*) are two specimens obtained by Anchieta, apparently *Sigmodus nigricans* of Neumann, which therefore is not confined to Northern Angola, as its describer believed. As regards the blue or green gloss on the black head and underparts, it is difficult to see any difference in the Museum specimens; but in true *S. retzii* the brown back is certainly more sharply defined from the head than in

S. nigricans, in which, as Mr. Neumann justly remarks, the black of the head fades off gradually into the black of the back.

Sigmodus intermedius I cannot judge of, as the Museum possesses no specimens from Tanganyika or the Victoria Nyanza. It is described by Mr. Neumann as a little lighter in colour than typical *S. retzii.*

S. tricolor, of which we have the types in the Museum, is an inhabitant of the Zambesi and Nyasa regions, whence we have a considerable series. It varies a good deal in the tint of the back, and quite as much as Mr. Neumann's western races of *S. retzii*; but I believe the variation as regards *S. tricolor* to be due to the wear and tear of the plumage, the darker ones being those in fresher feathering. The Museum has examples of *S. tricolor* from Oliphant's River in the Transvaal (*T. Ayres*), and from Mozambique (*H. S. H. Cavendish* : *cf.* Sharpe, Ibis, 1900, p. 112). To the northward in East Africa, we have specimens from Dar-es-Salaam, Mamboio, and Ugogo, obtained by Sir John Kirk (Shelley, P. Z. S. 1881, p. 581), as well as from the Usambara Hills. Here and at Mamboio also occurs true *S. graculinus* Cab., a species represented in the Museum from Dar-es-Salaam, Mombasa, and Lamu; but from the Usambara Hills are two specimens showing only a faint trace of the white spots on the primaries, and suggestive of the interbreeding of *S. tricolor* and *S. graculinus.*

It must also be noticed that the more northern specimens of *S. tricolor,* from Ugogo and other places in East Africa, are of a decidedly lighter drab colour on the back than is the case with the Nyasa series as a whole; but in the latter are many light-backed individuals, and an absolute intergradation between dark and light forms can be traced.—R. B. S.]

152. BRADYORNIS MURINUS.

Bradyornis murinus Finsch & Hartl.; Reichen. Vög. deutsch. Ost-Afr. p. 152 (1894); Shelley, B. Africa, i. p. 93 (1896); Hinde, Ibis, 1898, p. 580 (N'Goleni, Machako's); O. Neum. J. f. O. 1900, p. 258.

Bradyornis oatesi Sharpe, Ibis, 1897, p. 510 (Zululand).

No. 72. ♂ ad. Gil Gil River, April 21, 1896. Bill black, base of lower mandible horn-blue; feet black; iris brown. Saw three or four of them together flying along in front of me after the manner of Honey-guides.

No. 341. ♂ ad. Kamassia, 6500 feet, Aug. 24, 1896.

No. 475. ♂ ad. Ravine, Mau, Feb. 21, 1897. Iris brown; bill and feet black.

No. 592. ♂ ad. Ravine, March 31, 1897.

153. BRADYORNIS SUBALARIS.

Bradyornis subalaris Sharpe, P. Z. S. 1873, p. 713, pl. clviii. fig. 1.

No. 310. ♂ ad. Elgeyu, 3700 feet, Aug. 20, 1896. Iris brown; bill and feet black. Fairly plentiful.

[The wing in this specimen measures 3·2 inches, and I cannot see any difference between Mr. Jackson's bird and the typical example of *B. subalaris*.—R. B. S.]

154. BRADYORNIS PALLIDUS.

Bradyornis pallidus (v. Müll.); Reichen. Vög. deutsch. Ost-Afr. p. 151 (1894); Shelley, B. Africa, i. p. 93 (1896); Jackson, Ibis, 1898, p. 139 (Witu); Ogilvie Grant, Ibis, 1900, p. 150; O. Neum. J. f. O. 1900, p. 259.

No. 593. ♀ ad. Ravine, Mau, March 3, 1897. Iris brown; bill and feet black.

[This seems to be the large form of brown *Bradyornis*, which is the true *B. pallidus* of Müller. Wing 3·75 inches. (*Cf.* Ogilvie Grant, *l. s. c.*)—R. B. S.]

155. BRADYORNIS ATER.

Melænornis ater (Sundev.); Reichen. Vög. deutsch. Ost-Afr. p. 151 (1894); Shelley, B. Africa, i. p. 93 (1896).

Melænornis ater tropicalis O. Neum. J. f. O. 1900, p. 256.

No. 55. ♂ ad. Kibwesi, 3000 feet, March 15, 1892.
No. 58. ♂ ad. „ „ „ 16, 1892.
No. 62. ♀ ad. „ „ „ 17, 1892.
No. 70. ♂ ad. „ „ „ 23, 1892.

156. MELÆNORNIS EDOLOIDES.

Melænornis edoloides Swains.; Sharpe, Ibis, 1891, p. 602; Shelley, B. Africa, i. p. 93 (1896).

No. 1237. ♂ ad. Nandi, 6500 feet, June 26, 1898. Iris brown; bill and feet black.

This bird and another had been noticed in the kitchen-garden very early (before sunrise) on three mornings; they sat on a tree-stump and darted at insects like a Drongo. One also settled on the ground for a moment.

Fam. SYLVIIDÆ.

157. AËDON PSAMMOCHROA.

Aëdon psammochroa Reichen. Orn. Centralbl. 1879, p. 139.

Sylvia psammochroa Reichen. Vög. deutsch. Ost-Afr. p. 231 (1894).

a. ♀. Ngomeni, April 3, 1892.

[This species appears to be distinct from *A. galactodes* and *A. familiaris.* It is a browner bird than either of them, and has the whole of the throat, breast, and flanks vinaceous isabelline.—R. B. S.]

158. SYLVIA ATRICAPILLA.

Sylvia atricapilla L.; Seebohm, Cat. B. Brit. Mus. v. p. 23 (1881); Reichen. Vög. deutsch. Ost-Afr. p. 231 (1894) (Victoria Nyanza); Shelley, B. Africa, i. p. 81 (1896); O. Neumann, J. f. O. 1900, p. 310 (Kibwezi, Kilimanjaro); Ogilvie Grant, Ibis, 1900, p. 151.

No. 590. ♂. Ravine, Mau, March 31, 1897. Iris brown; bill brownish black, the lower mandible horn-blue; feet pale horn-blue.

No. 606. ♀. Ravine, April 4, 1897. Iris brown; bill dusky black, the lower edge of upper mandible and lower mandible horn-blue; feet pale horn-blue.

[The first record of our Black-cap wintering in the Mau district. Lord Delamere, however, has sent several specimens from the Athi River, and Mr. Oscar Neumann records it at Kibwezi in South Ukamba in December, and again at Moschi on Kilimanjaro in the same month.—R. B. S.]

159. SYLVIA SIMPLEX.

Sylvia hortensis Reichen. Vög. deutsch. Ost-Afr. p. 231 (1894) (Kageyi); O. Neum. J. f. O. 1900, p. 310 (Kavirondo).

Sylvia simplex Lath.; Shelley, B. Africa, i. p. 81 (1896).

No. 564. ♂ ad. Ravine, Mau, March 27, 1897. Iris brown; bill olive-brown, lower mandible yellowish-white horn, with dusky tip; feet pale horn-blue.—May 28th. Very plentiful and in full song like a Garden-Warbler. Very shy and creeps off out of sight directly it catches a glimpse of the intruder. Very difficult to see in the thick foliage amongst which it sits whilst singing.

No. 598. ♂ ad. Ravine, Mau, April 2, 1897. Bill dark horn-blue, lower mandible horn-blue.

Nos. 607, 608. ♂ ♀ ad. Ravine, Mau, April 4, 5, 1897.

[In addition to the synonym of *Bradyornis woodwardi*, which I had to merge in that of *Sylvia simplex*, I have also to state that my *Muscicapa ussheri* (P. Z. S. 1882, p. 591) is nothing but a Garden-Warbler, as my friend Capt. Shelley has pointed out to me. The typical specimen is in full moult, and therefore there was no chance of recognising the proportions of the primaries, while the plumage looks very pale and peculiar.—R. B. S.]

160. PHYLLOSCOPUS TROCHILUS.

Phylloscopus trochilus (L.); Seebohm, Cat. B. Brit. Mus. v. p. 56 (1881); Sharpe, Ibis, 1892, p. 153 (Machako's); Reichen. J. f. O. 1892, p. 59 (Uganda); id. Vög. deutsch. Ost-Afr. p. 232 (1894); Shelley, B. Africa, i. p. 80 (1896); Hartert, Afr. Sun, App. p. 354 (1899); Ogilvie Grant, Ibis, 1890, p. 152; O. Neum. J. f. O. 1900, p. 310; Hinde, Ibis, 1900, p. 497.

No. 43. ♂ ad. Kibwezi, 3000 feet, March 10, 1892.

No. 52. ♀ ad. „ „ „ 12, 1892.

Iris brown; bill dusky brown, lower mandible paler, with yellowish tint; feet olive-brown, claws paler. The Willow-Wren was very plentiful at Kibwezi in the second week in March, where it was evidently on its way north. On

March 20th, 1889, I also obtained one at Machako's, about 100 miles north of Kibwezi.

a. ♂ ad. Ntebi, March 2, 1895.

b. ♂ ad. „ Oct. 3, 1895.

No. 33. ♂ ad. Ravine, Mau, March 15, 1896. Iris brown; bill dark brown, lower mandible pale brown, fading into dull yellow at the base; feet dark brown. Moulting.

No. 509. ♀ ad. Ravine, Mau, March 4, 1897. Iris brown; bill brown, base of lower mandible yellowish; feet dark brown, toes brownish flesh-colour. Several seen. Going north.

Nos. 546, 547. ♂ ad. Ravine, March 20, 1897. Iris hazel; bill dusky olive-brown, lower mandible dusky yellow; feet brown.

No. 947. ♀ ad. Kakamega, Kavirondo, April 7, 1898. Plentiful. On the way northwards.

[It is very interesting to see that some of Mr. Jackson's specimens are in full moult in March, and that some of them retain a considerable amount of yellow on the under surface, while others are decidedly greyer below. Some of the latter look like Chiffchaffs as regards their plumage; but I believe the whole series to belong to *P. trochilus*, though the moulting quills in some of them make it difficult to identify them with absolute certainty.—R. B. S.]

161. HYPOLAIS PALLIDA.

Hypolais pallida (Hempr. & Ehr.); Seebohm, Cat. B. Brit. Mus. v. p. 82 (1881); Reichen. Vög. deutsch. Ost-Afr. p. 232 (1894: Igónda); Shelley, B. Africa, i. p. 80 (1896).

No. 77. ♂ ad. Mts. of Ndai-Kinani, April 2, 1892.

No. 102. ♂ ad. Ndeva, Teita, April 7, 1892. Iris brown; bill dusky, lower mandible yellowish white; feet pale brown.

As in the case of the Willow-Wrens, I was first attracted to these birds by their song.

162. ACROCEPHALUS PHRAGMITIS.

Acrocephalus phragmitis (Bechst.); Sharpe, Ibis, 1892, p. 153 (Ukambani); Ogilvie Grant, Ibis, 1900, p. 151.

a. ♂. Ntebi, March 7, 1895.

163. ACROCEPHALUS TURDOIDES.

Acrocephalus turdoides (Meyer); Seebohm, Cat. B. v. p. 95 (1881).

No. 825. ♂. Berkeley Bay, Victoria Nyanza, Feb. 2, 1895. Iris brown; bill dark brown, the lower mandible whitish horn with dusky tip; roof of mouth bright orange-red; feet pale slaty grey.

Several heard in the long reeds and papyrus. The note is loud and grating. This was the only specimen seen, though I got within a few yards of several as they sang concealed in the tall reeds.

164. CALAMONASTES SIMPLEX. (Plate II. fig. 2.)

Calamonastes simplex (Cab.); Sharpe, Ibis, 1892, p. 154; Reichen. Vög. deutsch. Ost-Afr. p. 225 (1894); Sharpe, P. Z. S. 1895, p. 482; Shelley, B. Africa, i. p. 72 (1896); Hartert, Afr. Sun, App. p. 353 (1899); O. Neum. J. f. O. 1900, p. 308.

Nos. 6, 7. ♂ ♀. Mauungu Wilderness, Dec. 30, 1891. Irides hazel; bill black; feet dark "shrimp"-brown, rather paler in the female.

This species is very plentiful in suitable places, but it is essentially a bird of the wilderness. It is particularly abundant between Tara and Mt. Mauungu, also in the wilderness between the River Voi and Kibwesi. In 1890 I also obtained a specimen in Turquel in the Sük country. This bird is more often heard than seen, as it is in the habit of perching on the top of some acacia or other tree, and keeps up a curious metallic call.

Inside the female I found a fully-formed egg, rather smaller than a Hedge-Sparrow's, light blue, with pale brown speckles.

165. CALAMOCICHLA LEPTORHYNCHA.

Calamonastes leptorhynchus (Fischer & Reichen.); Sharpe, Ibis, 1892, p. 154.

Calamocichla leptorhyncha Reichen. J. f. O. 1892, p. 58 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 219 (1894) (Karema, Kagéyi); Shelley, B. Africa, i. p. 79 (1896); O. Neum. J. f. O. 1900, p. 302.

a. ♂ ad. }
b, c. ♀ ad. } Ntebi, March 7, 1893.
d. ♀ juv. }

[The young of this species is much more rufous above than the adult, and the underparts are of an isabelline colour.—R. B. S.]

166. SCHŒNICOLA APICALIS.

Schœnicola apicalis (Cab.); Sharpe, Cat. B. Brit. Mus. vii. p. 110 (1883); Shelley, B. Africa, i. p. 77 (1896).

Bradypterus apicalis Hartert, Nov. Zool. vi. p. 48 (1900).

No. 1049. ♀ ad. Nandi, 6500 feet, April 30, 1898. Iris greyish hazel; bill brown, lower mandible white; feet bluish flesh-colour.

No. 1114. ♂ ad. Kakamega, 4600 feet, May 15, 1898. Iris hazel-brown; bill black, lower mandible horn-blue; feet brown, with slaty tint.

In Nandi this bird is plentiful in the marshy hollows where the grass, reeds, and rushes grow rank and tall, and where there is excellent cover. When it is flushed, which is a somewhat difficult task, it will fly only a short distance, twenty yards or so, before dropping into some rank thicket, from which it is almost useless to try and move it. Occasionally the birds will settle on a tall reed or grass-stem sufficiently long to enable them to survey the cause of their alarm. This is the most favourable opportunity for a shot, since, if it be successful, this bird can easily be marked down. If killed in flight they are most difficult to retrieve, owing to the lack of any landmark, and many are lost in consequence. In Kakamega they frequent the open country away from the marshy hollows, but here the grass is tall and exceedingly rank and rush-like.

No. 1115. ♂ ad. Kakamega, 4600 feet, May 15, 1898.

167. MELOCICHLA MENTALIS.

Melocichla mentalis (Fraser); Shelley, B. Africa, i. p. 76 (1896); Sharpe, Bull. B. O. C. vi. p. xlviii (1897: Ntebi).

Cisticola mentalis Sharpe, Cat. B. Brit. Mus. vii. p. 241 (1883).

No. 55. ♀ ad. N'tebi, Oct. 4, 1895.

[This appears to me to be the true *M. mentalis* of West Africa, and not the eastern race, *M. orientalis*.—R. B. S.]

168. CISTICOLA TERRESTRIS.

Cisticola terrestris (Smith); Sharpe, Cat. B. Brit. Mus. vii. p. 266 (1883); Shelley, B. Africa, i. p. 74 (1896); Ogilvie Grant, Ibis, 1900, p. 159; O. Neum. J. f. O. 1900, p. 303; Sharpe, P. Z. S. 1900, p. 607.

No. 173. ♂ juv. Mau, 8500 feet, July 11, 1896. Bill brownish black, lower mandible pale horn-blue; feet flesh-colour; iris hazel.

Nos. 174, 175. ♂ ♀ ad. Mau, 8500 feet, July 12, 1896. Iris hazel; bill brownish black, lower mandible yellowish; feet pale yellowish flesh.

169. CISTICOLA HINDII.

Cisticola hindei Sharpe, Bull. B. O. C. vi. p. vii (1896); Hinde, Ibis, 1898, p. 580, pl. vii. fig. 2; Hartert, Nov. Zool. vi. p. 49 (1900); O. Neum. J. f. O. 1900, p. 303; Hinde, Ibis, 1900, p. 498.

Nos. 740, ♂; 741, 742, ♀ ad. Lake Naivasha, May 8, 1898.

170. CISTICOLA TINNIENS (Licht.); Shelley, B. Africa, i. p. 74 (1896).

a. ♂ ad. Mau plateau, Dec. 20, 1895.

No. 171. ♂ ad. Mau, 8500 feet, July 11, 1896. Iris hazel; bill black, lower mandible pale horn-blue; feet brownish flesh-colour.

No. 1016. ♀ ad. Nandi, 6500 feet, April 20, 1898. Bill brownish black, lower mandible dusky white; feet flesh-colour. Never seen, excepting in close vicinity to a marsh or swampy hollow.

No. 1059. ♀ ad. Nandi, 6500 feet, May 4, 1898. Bill black, lower mandible very pale horn-blue; feet yellowish flesh-colour. First seen in a marshy hollow.

Nos. 1066, 1067. ♂ ♀ ad. Nandi, 6500 feet, May 4, 1898.

This Warbler is rarely found away from marshes and the edges of swamps. It is not difficult to recognise it among other *Cisticolæ* on account of its well-marked tail and wings. In Nandi it is plentiful in the marshy hollows, but is not found on the higher ground.

[I have carefully compared Mr. Jackson's series of this Warbler with South-African specimens, and I cannot discover any specific differences between them, though this fact appears to be remarkable enough.—R. B. S.]

171. CISTICOLA STRANGII.

Cisticola strangei (Fraser); Reichen. Vög. deutsch. Ost-Afr. p. 221 (1894); Shelley, B. Africa, i. p. 74 (1896); Hartert, Afr. Sun, App. p. 353 (1899); id. Nov. Zool. vi. p. 49 (1900); O. Neum. J. f. O. 1900, p. 303.

a, b. ♂ ♀ ad. Kampala, April 6, 1895. Iris hazel; bill dark brown, lower mandible horn-blue; feet fleshy brown.

172. CISTICOLA SUBRUFICAPILLA.

Cisticola subruficapilla (Smith); Shelley, B. Africa, i. p. 74 (1896); Jackson, Ibis, 1898, p. 138 (Witu); Hartert, Afr. Sun, App. p. 352 (1899); Ogilvie Grant, Ibis, 1900, p. 162; Hinde, t. c. p. 498.

No. 48. ♂ ad. Ravine, Mau, March 28, 1896. Iris hazel; bill black, lower mandible dusky white; feet flesh-colour.

No. 561. ♀ ad. Ravine, March 26, 1897. Bill pale brown, lower mandible fleshy white. Found in scattered bush and long grass.

No. 580. ♂ ad. Ravine, March 29, 1897. Bill dark brown, lower mandible whitish horn-colour.

[This is a smaller bird than *C. cheniana*, and I cannot separate it from the true *C. subruficapilla* of South Africa. The measurements of Mr. Jackson's three specimens are as follows:—

♂. Wing 2·15–2·25 inches, tail 1·6–1·85.
♀. Wing 2·0 inches, tail 1·75.—R. B. S.]

173. CISTICOLA CHENIANA.

Cisticola cheniana (Smith); Reichen. Vög. deutsch. Ost-Afr. p. 222 (1894) (Lake Naivasha); Ogilvie Grant, Ibis, 1900, p. 161; O. Neum. J. f. O. 1900, p. 303.

No. 22. ♂ ad. Kibwezi, 3000 feet, March 1, 1892.

No. 245. ♂ ad. Elgeyu, 3700 feet, Aug. 13, 1896. Iris hazel; bill black, with lower mandible horn-blue; feet flesh-colour. Very plentiful.

No. 326. ♀ ad. Elgeyu, 3700 feet, Aug. 15, 1896. Bill dusky black, with lower mandible whitish horn. Nest in tuft of grass near a stream, very loosely constructed, entirely of coarse grass lined with finer. Eggs three, pale blue with dusky spots like those of a Linnet.

No. 380. ♀ ad. Njemps, Sept. 20, 1896.

Nos. 757, 769. ♂ ad. Lake Naivasha, Aug. 11, 13, 1897.

No. 812. ♂ ad. Lake Naivasha, Aug. 28, 1897.

[One specimen from Elgeyu seems to me to be inseparable from the true *C. cheniana* of South Africa. Another from the Athi River (*C. subruficapilla* Hinde, Ibis, 1900, p. 498) also apparently belongs to this paler race. The majority of the specimens, however, are darker birds, with dull rufous heads, the crown obscurely, but the back broadly, striped with blackish brown, and at first sight they appear to represent a dark broadly-striped race. I find, however, that many specimens from other parts of Africa approach them in colour, and for the present, at least, I think it better to keep all these East-African birds under the heading of *C. cheniana*.—R. B. S.]

174. CISTICOLA PROCERA.

Cisticola procera Peters; Sharpe, Ibis, 1892, p. 158; Shelley, B. Africa, i. p. 75 (1896); Sharpe, P. Z. S. 1900, p. 607.

No. 181. ♂ ad. Mau, 8500 feet, July 12, 1896. Iris hazel; bill black, lower mandible horn-blue.

Nos. 359, 360. ♂ ad. et imm. Molo River, Sept. 17, 1896. Iris stone-grey; bill brown, lower mandible yellow; feet bluish flesh-colour. In building the nest this bird weaves leaves together to form the roof.

175. Cisticola nuchalis.

Cisticola erythrogenys (nec Rüpp.); Sharpe, Ibis, 1892, p. 156 (Sotik, Mount Elgon); Hartert, Nov. Zool. vi. p. 49 (1900).

Cisticola nuchalis Reichen. Orn. MB. 1893, p. 61.

Nos. 146, 147. ♀ ad. Nandi, 6500 feet, July 4, 1896. Iris hazel; bill dusky, lower mandible horn-blue; feet flesh-colour.

Nos. 558, 559. ♂ ad. Ravine, March 26, 1897. Bill very dark brown; lower mandible whitish horn, darker towards the tip; feet flesh-colour, and rather thick and coarse for the size of the bird.

Nos. 642, 643. ♂ ad. Nandi, May 10, 1897. Bill black; base of lower mandible horn-blue. Very plentiful. Building nest in tuft of low grass. Blades of grass woven on top of nest. Very difficult to see. Nest of dry grasses, lined with seed-heads of fine grass and bracken. Entrance at side. Three eggs, like those of the Great Tit.

No. 844. ♂ ad. Kakamega, Kavirondo, Feb. 8, 1898. Bill black, lower mandible with patch of horn-white at base.

No. 873. ♀ ad. Nandi, Feb. 15, 1898.
No. 920. ♂ ad. Nandi, 6500 feet, March 21, 1898.
No. 1058. ♀ ad. „ „ May 4, 1898.
No. 1068. ♀ ad. „ „ May 4, 1898.

This Grass-Warbler is very plentiful in Nandi on the open grassy downs, which it frequents in preference to either bush or marshy hollows. It breeds in April and May. The nest is placed in a tuft of grass, beautifully hidden by blades of the grass bent over the top. It is a loose and somewhat flimsy structure of long grass, with little or no lining of finer materials. The eggs are mostly three in number, pale greenish blue, profusely mottled at the obtuse end with reddish brown. It is a noisy bird.

No. 1076. ♀ ad. Nandi, 6500 feet, May 6, 1898.
No. 1083. ♀ ad. „ „ May 7, 1898.
Nos. 1185, 1186. ♂ ad. Nandi, 6500 feet, June 2, 1898.
No. 1198. ♀ ad. Nandi, 6500 feet, June 8, 1898.

Breeding. Nest a slight structure of dry grass in a tuft, the long blades woven over the top forming a dome.

No. 1201. ♀ ad. Nandi, 6500 feet, June 11, 1898.

[When Professor Reichenow was in England he showed me the type of a Grass-Warbler which he proposed to call *C. nuchalis*. It was a small form of *C. erythrogenys*, and measured: total length 4·2 inches, culmen 0·55, wing 2·2, tail 1·5, tarsus 0·95.

I identify with this *C. nuchalis* a female bird from Nandi (No. 147), which has the wing 2·3 and the tail 1·6 inches. I find, moreover, that it is the same species which in 1892 I identified as *C. erythrogenys* from Sotik and Mount Elgon (Ibis, 1892, p. 157), and the series collected by Mr. Jackson shows that it is the common species of the country.

It is very much smaller than the true *C. erythrogenys*, which I now believe to be confined to Abyssinia. The latter is a large bird, conspicuously rufous on the wing-coverts and external aspect of the quills; the thighs, vent, and under tail-coverts are deep fawn-colour, almost cinnamon. It has no blackish streaks or lines on the flanks.

The bird which I identify as *C. nuchalis* has more or less distinct lines of black or dusky brown on the sides of the body.

The following are the dimensions of Mr. Jackson's series of specimens, which vary somewhat, as they have been collected at different times of the year, and of course those in summer plumage are always smaller :—

♂. Wing 2·6–2·8 inches, tail 1·75–2·0.
♀. „ 2·25–2·4 inches, „ 1·6–1·8.

Then there is a third race, *C. ambigua* Sharpe, which has also been identified with *C. erythrogenys*. It is the bird from Machako's and N'gong obtained by Dr. Hinde (Ibis, 1900, p. 498). It is smaller than *C. erythrogenys*, and of about the same size as *C. nuchalis*. It may perhaps be identical with the latter, but at present I think that it may be distinguished by the absence of streaks on the flanks. The measurements are as follows :—

♂ (Masai-land, &c.). Wing 2·5–2·7, tail 1·9–2·0.
♀ (do.). „ 2·35, „ 1·75.
♂ (Mau, Ravine, &c.). Wing 2·7–2·9, tail 1·9–2·05.
♀. „ 2·5, „ 1·8.—R.B.S.]

176. CISTICOLA AMBIGUA.

Cisticola erythrogenys (nec Rüpp.); Hinde, Ibis, 1900, p. 498 (N'gong; Machako's).

Cisticola ambigua Sharpe, Bull. B. O. C. xi. p. 28 (Nov. 1900).

a. ♂ ad. Mau, 8000 feet, Oct. 30, 1895. Bill dusky brown, lower mandible fleshy white; feet flesh-colour; iris hazel.

No. 90. ♂ ad. Ravine, Mau, June 15, 1896. Plentiful.

No. 560. ♀ ad. „ March 26, 1897. Bill black, lower mandible horn-blue. Plentiful at the Ravine in the scattered low bush and long grass. A very noisy little bird.

Nos. 568, 569. ♂ ad. Ravine, March 28, 1897.

Nos. 576, 577. ♂ ad. „ March 29, 1897. Bill black, base of lower mandible bluish horn-white.

177. CISTICOLA FISCHERI.

Cisticola fischeri Reichen. J. f. O. 1891, p. 162; id. Vög. deutsch. Ost-Afr. p. 221 (1894); Shelley, B. Africa, i. p. 75 (1896).

No. 432. ♂ juv. Ravine, Dec. 5, 1896. Bill brown, the lower mandible flesh-colour; feet brownish flesh-colour, with duller joints.

No. 1217. ♀ juv. Nandi, 6500 feet, June 17, 1898.

[Both these specimens are young birds, but they are very tawny in colour, and must apparently be *C. fischeri*.—R. B. S.]

178. CISTICOLA EMINI.

Cisticola emini Reichen. J. f. O. 1892, p. 56 (Bussissi); id. Vög. deutsch. Ost-Afr. p. 220 (1894); Shelley, B. Africa, i. p. 75 (1896).

a. ♂ ad. Ntebi, April 29, 1895.

Nos. 317, 318. ♂ ♀ ad. Kamassia, 4000 feet, Aug. 22, 1896.

Iris hazel; bill black, base of lower mandible horn-white; feet brownish flesh-colour. Plentiful.

179. Cisticola chubbi.

Cisticola chubbi Sharpe, Ibis, 1892, p. 157 (Mount Elgon); Reichen. J. f. O. 1892, p. 56 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 220 (1894); Shelley, B. Africa, i. p. 75 (1896); Hartert, Nov. Zool. vi. p. 48 (1900).

No. 144. ♂ ad. Nandi, 6500 feet, July 3, 1896. Bill black; feet flesh-colour; iris brown.

Nos. 921, 922, ♂; 929, 930, ♀ ad. Nandi, 6500 feet, March 21–23, 1898. Iris bright crimson-brown; bill black, with base of lower mandible horn-blue. In bush; several seen together.

No. 1015. ♂ ad. Nandi, 6500 feet, April 20, 1898. Iris brown; bill brownish black, base of lower mandible white.

Nos. 1031, 1032, 1033. ♀ ad. Nandi, 6500 feet, April 24, 1898. Iris crimson-brown.

Very plentiful in the bush and thick vegetation at the edge of the forest belts. Extremely noisy: three or four will sit together and seem to vie with each other as to which will call loudest.

No. 1038. ♂ ad. Nandi, 6500 feet, April 26, 1898.
No. 1064. ♂ ad. „ „ May 5, 1898.

Very plentiful in Nandi, where it is found in small parties of three or four together in the bush. It is a noisy bird at all times, but particularly when three or four of them meet in the bush. Here they sit together, spread out their tails, and sway their bodies in all kinds of positions up and down, sideways, &c., the whole time chattering in a loud and comical chorus.

No. 1065. ♀ ad. Nandi, May 4, 1898. Bill brownish, lower mandible horn-blue, except the tip.

No. 1082. ♀ ad. Nandi, 6500 feet, May 7, 1898. Feet flesh-colour with pinky tint.

180. Cisticola erythrops.

Cisticola erythrops (Hartl.); Sharpe, Cat. B. Brit. Mus. vii. p. 250 (1883); Reichen. Vög. deutsch. Ost-Afr. p. 221

(1894); Shelley, B. Africa, i. p. 75 (1896); O. Neum. J. f. O. 1900, p. 303.

No. 143. ♂ ad. Nandi, 6500 feet, July 3, 1896. Bill black, lower mandible dusky horn-blue; feet flesh-colour; iris hazel.

181. CISTICOLA RUFA.

Cisticola rufa (Fraser); Reichen. Vög. deutsch. Ost-Afr. p. 221 (1894: Karagwe; Bukoba); Shelley, B. Africa, i. p. 75 (1896).

a. Juv. Sannia, Nov. 14, 1894.

b. ♀ ad. Kampala, April 3, 1895.

182. PRINIA MYSTACEA.

Prinia mystacea Rüpp.; Sharpe, Ibis, 1892, p. 155 (Mt. Elgon); Reichen. J. f. O. 1892, p. 57 (Uganda); id. Vög. deutsch. Ost-Afr. p. 225 (1894); Shelley, B. Africa, i. p. 73 (1896); Jackson, Ibis, 1898, p. 138 (Witu); Hinde, t. c. p. 580 (Machako's); Hartert, Afr. Sun, App. p. 352 (1899); O. Neum. J. f. O. 1900, p. 308.

No. 50. ♀ ad. N'tebi, Oct. 3, 1895.

Nos. 148, 149. Nandi, 6500 feet, July 4, 1896. Iris hazel; bill black; feet flesh-colour.

Nos. 198, ♀; 199, ♂ ad. Ravine, Mau, July 24, 1896. Bill black, with base of lower mandible horn-blue; feet brownish flesh-colour.

No. 424. ♂ juv. Ravine, Nov. 20, 1896. Bill brown, lower mandible horn-blue.

No. 512. ♂ ad. Ravine, March 5, 1897. Eyelids light brown. Plentiful. Generally three or four together in the long grass and coarse herbage that grows in spots formerly cultivated. Very restless and keeps up a perpetual twitter as it darts about in the herbage.

No. 516. ♂ ad. Ravine, March 6, 1897.

No. 571. ♂ ad. „ March 28, 1897. Bill very dark brown, the base horn-blue with dusky tip.

Nos. 581, 582, 583. ♂ ad. Ravine, March 29, 1897.

No. 809. ♀ ad. Lake Naivasha, Aug. 27, 1898.

Nos. 926, 928, ♂; 927, ♀ ad. Nandi, 6500 feet, March 28, 1898. Iris ochraceous hazel.

183. BURNESIA MELANOPS.

Burnesia melanops Reichen. & Neum. Orn. MB. 1895, p. 75; Shelley, B. Africa, i. p. 73 (1896); Neum. J. f. O. 1900, p. 308.

No. 960. ♀ ad. Nandi forest, 6000 feet. April 10, 1898. Iris ochreous hazel; bill black; feet slate. In thick undergrowth; only one seen.

[Originally discovered by Mr. Oscar Neumann on the Mau hills.—R. B. S.]

184. BURNESIA REICHENOWI.

Burnesia reichenowi Hartl. J. f. O. 1890, p. 151; Reichen. J. f. O. 1892, p. 57; Shelley, B. Africa, i. p. 73 (1896); Neum. J. f. O. 1900, p. 308.

Burnesia leucopogon (nec Cab.) Sharpe, Bull. B. O. C. vi. p. xlviii (1897: N'tebi).

Burnesia ugandæ Sharpe, Bull. B. O. C. vii. p. vi (1897); id. Ibis, 1898, p. 146.

Prinia reichenowi Reichen. Vög. deutsch. Ost-Afr. p. 225 (1894) (Bukoba).

No. 19. ♂ ad. N'tebi, Sept. 19, 1895. Type of *B. ugandæ*.

Nos. 949, 750. ♂ ♀ ad. Kakamega, Ichuku river, Kavirondo, 5000 feet, April 7, 1898. Iris bright crimson brown; bill black; feet brownish pink. First seen. Found in open bush.

Nos. 1017, 1018. ♂ ad. Nandi, 6500 feet, April 20, 1898. Very plentiful in thick brush and among the small trees in forest-belts.

No. 1048. ♂ ad. Nandi, 6500 feet, April 29, 1898.

[There can be no doubt that Mr. Oscar Neumann is right in stating that my *Burnesia ugandæ* is the same as *B. reichenowi* of Hartlaub, the description of which I had overlooked.

There is no difference in the colour of the sexes, and the male (wing 2·2–2·3) is scarcely larger than the female (wing 2·2). A young male from N'tebi resembles the adults in colour, but is a little duller, does not show such distinct pale edgings to the feathers of the crown, and has browner margins to the quills.—R. B. S.]

185. DRYODROMAS RUFIDORSALIS.

Dryodromas rufidorsalis Sharpe, Bull. B. O. C. vi. p. xlviii (1897); Hartert, Ansorge's African Sun, p. 352 (1899) (Kinani).

a. ♂ ad. Tsavo River, Sept. 20, 1894. Bill horn-blue; feet pale shrimp-brown; iris light hazel.

[This species is very similar to *D. smithi* (Sharpe, P. Z. S. 1895, p. 482), but has a rufous back, only a little lighter than the rufous crown. The under surface of the body is also bright ochreous buff, but this colour is occasionally seen in specimens of *D. smithi* and may be seasonal.—R. B. S.]

186. EUPRINODES CINEREUS. (Plate III. fig. 2.)

Euprinodes cinereus Sharpe, Ibis, 1892, p. 155 (Mount Elgon).

Apalis cinerea Shelley, B. Africa, i. p. 71 (1896).

Euprinodes schistaceus (nec Cass.); Hartert, Ansorge's Afr. Sun, p. 353 (1899).

No. 172. ♂ ad. Mau, 8500 feet, July 11, 1896. Bill black; feet flesh-colour; iris hazel, eyelids pale brown. In thick bush.

No. 853. ♂ ad. Nandi, 6500 feet, Feb. 12, 1898. Bill black, lower mandible yellow.

No. 861. ♀ ad. Nandi, 6500 feet. Feb. 13, 1898.

Nos. 1019, 1020. ♀ ad. Nandi, 6500 feet, April 20, 1898. Iris bright hazel, eyelids pinkish brown; bill black, base of lower mandible horn-blue.

No. 1196. ♂ ad. Nandi, 6500 feet, June 7, 1898. Iris cinnamon-brown, fading into yellow round the pupil; eyelids brown; bill slaty black; feet shrimp-brown.

No. 1197. ♀ ad. Nandi, 6500 feet, June 7, 1898. Iris bright hazel, fading into yellow round the pupil, eyelids light brown.

No. 1251. ♂ ad. Nandi, 6500 feet, June 28, 1898. Iris bright brown, fading into ochraceous hazel round the pupil. Found in thick foliage of tall trees in the early mornings and late evenings darting and flitting about in search of insects.

[The series from Nandi presents scarcely any variation in colour. Sometimes the brown of the head is a little deeper in tint, while the under surface is rather more ochraceous in some specimens than in others.—R. B. S.]

187. EUPRINODES FLAVOCINCTA.

Euprinodes flavocincta Sharpe; Reichen. J. f. O. 1892, p. 57; Hartert, Nov. Zool. vii. p. 49 (1900).

Chlorodyta flavocincta Shelley, B. Africa, i. p. 72 (1896).

Apalis flavocincta (Sharpe); Reichen. Vög. deutsch. Ost-Afr. p. 225 (1894) (Bukoba); O. Neum. J. f. O. 1900, p. 306.

No. 469. ♂ ad. Ravine, Mau, Feb. 19, 1897. Iris hazel; bill black; feet very dark brown, toes light brownish flesh-colour, claws dark brown. The first seen. Flitting about in a tree like a *Camaroptera*.

No. 508. ♂ ad. Ravine, March 4, 1897. Eyelids pale brown.

No. 579. ♀ ad. Ravine, March 29, 1897.

No. 621. ♀ ad. Ravine, April 10, 1897. Iris hazel, with yellowish round ring; feet dark brown, toes flesh-colour.

[The two females show only a very small black chest-spot.

As it was extremely difficult to identify this species without comparing the types, I sent one over to Prof. Reichenow, who declared it to be the true *E. flavocincta*. Mr. Oscar Neumann (*l. c.*) says that *E. flavocincta* has the crown olive-green like the back, and *E. golzi* is the grey-headed form figured by Reichenow as *E. flavocincta* in the 'Vögel deutsch. Ost-Afrika's' (p. 224). Then there is a third species mentioned by Mr. Oscar Neumann (*op. cit.* p. 307) and described by him as *E. æquatorialis*. This, he says, is similar to *E. golzi*, while it has the upper surface lighter and more greenish yellow, has a broader yellow band on the crop, and is larger. As Mr. Neumann says nothing about any green on the head, I take it that the crown is grey as in *E. golzi*. He mentions that it has a white throat, which separates it from "*Apalis flavida*, Strickl."

E. flavocincta has a white throat and greenish head, and is very closely allied to *E. neglecta* of Alexander (Ibis, 1900, p. 113) ; but the latter has the fore-neck very bright yellow, not greenish on the sides, and the yellow extends to the lower throat, leaving only the chin and upper throat white. It is not *E. viridiceps* (Hawker), which is duller green above, has white tips and edges to the outer tail-feathers, and the crop-patch pale greenish yellow.

Dr. Reichenow has described *Euprinodes florisuga* from a MS. name (*Sylvia florisuga*) of Lichtenstein in the Berlin Museum. This is undoubtedly Alexander's *E. neglecta,* which thus becomes a synonym of *E. florisuga* (Reichen. J. f. O. 1898, p. 314, *ex* Licht.).—R. B. S.]

188. APALIS PULCHRA.

Apalis pulchra Sharpe, Ibis, 1891, p. 119; id. op. cit. 1892, p. 155, pl. iv. fig. 1; Shelley, B. Africa, i. p. 71 (1896).

No. 977. ♀ ad. Nandi, 6500 feet, April 12, 1898. Iris bright ochreous hazel; bill black; feet dusky brown, toes slightly paler.

No. 983. ♀ ad. Nandi, 6500 feet, April 13, 1898.
No. 992. ♂ ad. „ „ April 15, 1898.
No. 1041. ♀ ad. „ „ April 26, 1898.

Fairly plentiful in thick vegetation and bushes in belts of forest.

189. APALIS PORPHYROLÆMA.

Apalis porphyrolæma Reichen. & Neum. Orn. MB. iii. p. 75 (1895); Shelley, B. Africa, i. p. 71 (1896) ; O. Neum. J. f. O. 1900, p. 307.

Nos. 124, 125. ♂ ♀ ad. Nandi, 6500 feet, June 29, 1896. Iris crimson, with inner ring of ochreous yellow; bill black ; feet brownish flesh-colour. First seen in Nandi, but since observed at the Ravine on the 12th of September, 1896.

No. 587. ♀ ad. Ravine, Mau, March 30, 1897. Spreads out its tail, twitching it from side to side with drooping wings as it flits about amongst the tree-tops in search of insects.

No. 591. ♂ ad. Ravine, March 31, 1897. Iris hazel, eyelids light brown.

Nos. 673, ♀; 674, 675, ♂ ad. Ravine, July 20, 1897.

No. 1097. ♀ ad. Nandi, 6500 feet, May 10, 1898. Iris hazel, with ring of yellow round the pupil, which gives the eye an appearance of being ochreous yellow; eyelids brown; bill black; feet yellowish flesh-colour.

[The sexes are alike in colour, but the male is the larger bird (♂, wing 2·15, tail 2·25–2·5; ♀, wing 2·05, tail 1·9–2·0). The specimens killed in July are decidedly greyer than those procured from March to June, which have a somewhat browner shade above.—R. B. S.]

190. EMINIA LEPIDA.

Eminia lepida Hartl.; Reichen. J. f. O. 1892, p. 57 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 225 (1894); Shelley, B. Africa, i. p. 71 (1896); Neum. J. f. O. 1900, p. 308.

No. 39. ♀ juv. Ntebi, Sept. 30, 1895.

No. 58. ♂ ad. Ntebi, Oct. 5, 1895.

No. 955. ♂ ad. Nandi, 6500 feet, April 9, 1898. Iris bright crimson-brown; bill black; feet pale flesh-colour. Sings very sweetly, with some notes not unlike those of a Nightingale.

No. 1027. ♀ ad. Nandi, 6500 feet, April 24, 1898. Plentiful in the brush, but difficult to see. Creeps about in the thick matted vegetation. Stomach contained beetles.

Nos. 1035, 1040. ♂ ♀ ad. Nandi, 6500 feet, April 25, 26, 1898. Note very loud.

No. 1074. ♂ ad. Nandi, 6500 feet, May 5, 1898.

[The immature female is decidedly a paler bird than the male, with a lighter grey head, and somewhat less chestnut on the throat. A young female from Ntebi has the chestnut on the throat paler, the head light grey, with a wash of yellowish green on the occiput; there is likewise very little tinge of chestnut on the under tail-coverts.

The female is smaller than the male and has a shorter bill. The wing is 2·65–2·75 inches in the female and 2·85–3·0 in the male. The tail in the male is 2·6–2·9 inches in length and 2·25–2·35 in the female.—R. B. S.]

191. CAMAROPTERA BREVICAUDATA.

Camaroptera brevicaudata (Rüpp.); Shelley, B. Africa, i. p. 69 (1896); Jackson, Ibis, 1898, p. 138 (Witu); Ogilvie Grant, Ibis, 1900, p. 157.

No. 36. ♀ ad. Ravine, Mau, March 17, 1896. Iris hazel, eyelids yellowish brown; bill black, lower mandible horn-blue; feet dusky.

No. 565. ♂ ad. Ravine, March 27, 1896.

No. 619. ♂ ad. Ravine, April 10, 1897. A bird fond of creeping about amongst dead brushwood and scrub.

No. 626. ♀ ad. Ravine, April 13, 1897.

No. 758. ♀ ad. Lake Naivasha, Aug. 11, 1897.

Nos. 1079, ♂; 1089, ♀ ad. Nandi, 6500 feet, May 6, 9, 1898. Iris bright hazel, eyelids ochreous; bill dark brown, lower mandible horn-blue; feet bluish flesh-colour.

192. SYLVIELLA BARAKA.

Sylviella virens Reichen. J. f. O. 1892, p. 56 (nec Cass.); O. Neum. J. f. O. 1900, p. 306.

Sylviella baraka Sharpe, Bull. B. O. C. vii. p. vi (1897).

a. ♀ ad. Ntebi, Feb. 14, 1895. Iris hazel; bill dusky, lower mandible yellowish; feet brownish flesh-colour.

b. ♂ ad. Ntebi, April 21, 1895.

[Mr. Ogilvie Grant, Ibis, 1900, p. 156, states that this species "appears to be founded on immature examples of *S. virens* (Cass.)." I still see no reason for doubting that the two species are quite distinct.—R. B. S.]

193. SYLVIELLA JACKSONI.

Sylviella jacksoni Sharpe, Bull. B. O. C. vii. p. vii (1897); O. Neum. J. f. O. 1900, p. 305.

No. 32. ♂ ad. Kibwezi, 3000 feet, March 7, 1892.

Nos. 59, 60. ♂ ♀ ad. Kibwezi, 3000 feet, March 16, 1892.

[Mr. Ogilvie Grant (Ibis, 1900, p. 154) has given a review of the genus *Sylviella*, and in the main points of his revision I agree, especially in the distinctions drawn between *S. micrura* (Rüpp.) and *S. brachyura* (Lafr.). Dr. Reichenow has also given a key to the species of *Sylviella* ("Ueber *Sylviella*-Arten") in the 'Ornithologische Monatsberichte' for 1900 (pp. 21, 22).

Mr. Grant thinks that there can be no doubt that my *S. jacksoni* is the same as *S. whytii* of Shelley, but, with some more specimens of the former before me, the two seem to me to be easily recognizable.

Of *S. pallida* I am unable to judge without seeing the type. One specimen presented to the Museum by Capt. Boyd Alexander appears to have a dark eye-streak, and to be *Sylviella flecki* of Reichenow (Orn. MB. 1900, p. 22). Another specimen from Tete is determined by Mr. Grant as *S. pallida*, but seems to me to be *S. whytii*.—R. B. S.]

194. SYLVIELLA LEUCOPHRYS.

Sylviella leucophrys Sharpe, Ibis, 1891, p. 120; id. op. cit. 1892, p. 159; Shelley, B. Africa, i. p. 70 (1896).

No. 1063. ♀ ad. Nandi, 6500 feet, May 4, 1898. Iris bright crimson-brown; eyelids brown; bill pale brown, lower mandible paler still; feet light brown with pinkish tint. Types procured on Mount Elgon. First seen since its discovery in February 1890. This little bird creeps about in thick brush like *Camaroptera brevicaudata*.

Fam. TURDIDÆ.

195. COSSYPHA IOLÆMA.

Cossypha caffra (nec L.); Sharpe, Ibis, 1892, p. 160; Reichen. Vög. deutsch. Ost-Afr. p. 226 (1894) (Kilimanjaro); Shelley, B. Afr. i. p. 84 (1896, partim).

Cossypha caffra mauensis O. Neum. J. f. O. 1900, p. 309.

No. 122. ♂ juv. Mau, 8000 feet, June 26, 1896. Iris brown; bill, upper mandible dull brown, lower mandible yellowish white; feet bluish flesh-colour.

No. 200. ♂ ad. Ravine, Mau, July 25, 1896. Iris brown; bill and feet black. Plentiful in thick bush, though not often seen.

No. 229. ♂ juv. Elgeyu, 5000 feet, Aug. 10, 1896.

No. 230. ♂ ad. Elgeyu, 5000 feet, Aug. 10, 1896. Bill black; feet dark slate-colour.

No. 477. ♂ juv. Ravine, Feb. 21, 1897. Iris brown; bill black, gape yellow; feet brownish black.

No. 495. ♂ ad. Ravine, March 2, 1897. Scarce. Found in thick brush. Sings very sweetly, generally in the evening, perched on a dead bush. Very shy, and disappears at once on the approach of danger into the bush, where it can be heard giving vent to a curious low grating noise.

No. 543. ♀ ad. Ravine, March 19, 1897. Very shy. Hides itself in clumps of dead sticks overgrown with creepers, &c., in which it hops about, taking a peep at the intruder now and again. This is about the only time it gives anyone a chance of an observation, and no time must be lost in taking advantage of it.

No. 755. ♂ ad. Lake Naivasha, Aug. 10, 1897.
No. 768. ♀ ad. „ Aug. 13, 1898.

[I think that Prof. Reichenow is right in separating *Cossypha iolæma*, from Nyasa-land and Kilimanjaro, from the typical *C. caffra* of South Africa; but I cannot separate the Mau bird, which Mr. Oscar Neumann has called *C. mauensis*, from *C. iolæma*. They appear to me to be absolutely identical, and I have compared a good series of both forms.

C. iolæma is a greyer bird than *C. caffra*, and has a darker and more slate-coloured head, but examples in freshly-moulted plumage, which are browner, are very difficult to distinguish.—R. B. S.]

196. COSSYPHA MELANONOTA.

Cossypha melanonota (Cab.); Reichen. Vög. deutsch. Ost-Afr. p. 227 (1894) (Bukoba; Sirira Isl.); Shelley, B. Africa, i. p. 84 (1896).

a. ♀ ad. Ntebi, May 31, 1895. Iris brown; bill black; feet dull slate-colour.

b. ♀ ad. Ntebi, August 1, 1895.

No. 152. ♂ juv. Nandi, 6500 feet, July 5, 1896. Iris brown; bill brownish black; feet pale horn-blue.

No. 1026. ♀ ad. Nandi, 6500 feet, April 24, 1898. In very thick bush, and so seldom seen that it is difficult to say whether it is a rare bird or not.

197. COSSYPHA HEUGLINI.

Cossypha heuglini Hartl.; Reichen. Vög. deutsch. Ost-Afr. p. 226, fig. 101 (1894); Shelley, B. Africa, i. p. 84 (1896); Hartert, Nov. Zool. vii. p. 52 (1900).

No. 474. ♂ ad. Ravine, Mau, Feb. 21, 1897. Iris brown; bill black; feet very dark brown. Fairly plentiful in thick bush, but not often seen.

No. 689. ♀ juv. Ravine, July 23, 1897.

Nos. 1046, 1047. ♂ ♀ ad. Nandi, 6500 feet, April 29, 1898.

No. 1075. ♀ ad. Nandi, 6500 feet, May 6, 1898. Feet dark slate-colour.

No. 1178. ♂ ad. Nandi, 6500 feet, May 31, 1898. Iris dark grey; bill black, tip dull yellow, gape white; feet slaty black; lower eye-scales white.

198. CICHLADUSA GUTTATA.

Cichladusa guttata Heugl.; Sharpe, Ibis, 1892, p. 160; Reichen. Vög. deutsch. Ost-Afr. p. 228 (1894); Sharpe, P. Z. S. 1895, p. 484; Shelley, B. Africa, i. p. 84 (1896); O. Neum. J. f. O. 1900, p. 310.

a. Ad. Ukambani, Oct. 1894.

No. 246. ♂ ad. Elgeyu, 3700 feet, Aug. 13, 1896. Iris brown; bill black; feet horn-blue. Plentiful in the bush.

No. 289. ♀ ad. Elgeyu, 3700 feet, Aug. 18, 1896. Nest of red earth, cup-shaped, on horizontal bough in bush. Two eggs; blue.

199. ERYTHROPYGIA LEUCOPTERA.

Erythropygia leucoptera (Rüpp.); Sharpe, Cat. B. Brit. Mus. vii. p. 79 (1883); id. P. Z. S. 1895, p. 483; Shelley, B. Africa, i. p. 82 (1896); Hartert, Ansorge's Afr. Sun, p. 353 (1899); Ogilvie Grant, Ibis, 1900, p. 170.

No. 14. ♀ ad. River Tsavo, Jan. 11, 1892.

No. 88. ♀ ad. Ngomene, River Tsavo, April 4, 1892.

No. 90. ♂ ad. River Tsavo, Kufumika, April 5, 1892.

No. 92. ♂ ad. Kufumika, Teita. April 5, 1892. Iris brown; bill dusky brown, base of lower mandible dull yellow; feet pale horn-blue.

This bird is very plentiful in bush-country, and is far more often heard than seen. Its song is very noticeable, and much resembles that of the Nightingale.

200. ERYTHROPYGIA UKAMBANENSIS.

Erythropygia ukambensis Sharpe, Bull. B. O. C. xi. p. 28 (1900).

a. Ad. Ukambani, Oct. 1894.

[This species is larger than *E. leucoptera*, and easily distinguished by the black stripes on the fore-neck and sides of the upper breast. The bill is conspicuously longer and the crown is dusky brown.—R. B. S.]

201. GEOCICHLA PIAGGIÆ.

Geocichla piaggiæ (Bouv.); Sharpe, in Seebohm's Mon. Turdid. i. p. 41, pl. xiii. (1898)

Turdus piaggii Shelley, B. Africa, i. p. 88 (1896).

No. 898. ♀ ad. Ravine, 7500 feet, Feb. 5, 1898. Iris brown; bill black; feet dusky flesh-colour, toes darker. In thick forest.

Nos. 902, 903. ♀ ad. Ravine, 7500 feet, March 6, 1898.

No. 915. ♀ ad. Ravine, 7500 feet, March 10, 1898.

202. TURDUS PELIOS.

Turdus pelios Bp.; Shelley, B. Africa, i. p. 88 (1896); Sharpe, in Seebohm's Mon. Turdidæ, i. p. 328, pl. lxxvi. fig. 2 (1899); Ogilvie Grant, Ibis, 1900, p. 163.

Turdus bocagei (nec Cab.); Reichen. J. f. O. 1892, p. 60; id. Vög. deutsch. Ost-Afr. p. 232 (1894).

a. ♂ ad. Busoga, Nov. 17, 1894. Bill yellow; feet dull pale yellow; iris bright brown.

b. ♂ ad. Ntebi, March 1, 1895.

c, *d*. ♂ ad. Ntebi, Aug. 2, 8, 1895. Eyelids olive greenish yellow; feet yellowish ochre.

203. TURDUS ELGONENSIS.

Merula elgonensis Sharpe, Ibis, 1891, p. 445.

Turdus elgonensis Shelley, B. Africa, i. p. 88 (1896); Sharpe, in Seebohm's Mon. Turdidæ, i. p. 311, pl. lxxii. (1899); O. Neum. J. f. O. 1900, p. 309.

Turdus deckeni (nec Cab.); Hartert, Afr. Sun, App. p. 354 (1899).

No. 37. ♂ ad. Ravine, Mau, March 17, 1896. Iris brown; eyelids yellow; bill bright orange; feet dusky yellow. Much worn plumage, just beginning to moult. In habits the bird resembles the Blackbird (*T. merula*).

No. 472. ♀ ad. Ravine, Feb. 20, 1897. Generally singly or in pairs.

No. 539. ♀ juv. Ravine, March 18, 1897. Iris brown; eyelids greenish yellow; bill dull brown, lower mandible dusky orange; feet pale olive-brown.

No. 604. ♂ ad. Ravine, April 4, 1897. Stomach contained berries.

No. 661. ♂ juv. Ravine, July 17, 1897. Bill dusky brown with yellow edges; feet dusky yellow.

No. 662. ♂ ad. Ravine. July 17, 1897.

No. 865. ♂ ad. Nandi, 6500 feet, Feb. 14, 1898. Eyelids yellow; bill orange-red; feet dull yellow.

Nos. 1227, 1228. ♂ ♀ ad. Nandi, 6500 feet, June 21, 1898.

No. 1263. ♂ ad. Nandi, 6500 feet, July 3, 1898. Bill orange-yellow. Plentiful. Habits identical with those of the Blackbird. If disturbed its call is like that of a young Blackbird when scared on being hunted out of gooseberry-bushes at home. Stomach contained beetles, picked up from the ground.

204. MONTICOLA SAXATILIS.

Monticola saxatilis (L.); Sharpe, Ibis, 1892, p. 161; Reichen. Vög. deutsch. Ost-Afr. p. 235 (1894); Sharpe, P. Z. S. 1895, p. 485; Shelley, B. Africa, i. p. 89 (1896); Hinde, Ibis, 1898, p. 581 (Machako's); Hartert, Afr. Sun, App. p. 354 (1899); Ogilvie Grant, Ibis, 1900, p. 162; O. Neum. J. f. O. 1900, p. 312.

No. 34. ♂ ad. Ravine, Mau, March 16, 1896. Iris brown; bill brownish black; feet dark brown. All birds appear to be moulting, and a great number of them are now going about in pairs, March 16, 1896.

No. 833. ♂ ad. Samia Hills, Kavirondo. Feb. 3, 1898. Bill dusky black, greenish horn at base; feet black.

No. 845. ♂ ad. Nandi, 5500 feet, Feb. 2, 1898. Fairly plentiful both singly and in pairs. Several seen up to end of March, when they all disappeared.

No. 846. ♂ ad. Nandi, Feb. 9, 1898.

No. 859. ♀ ad. Nandi, 6500 feet, Feb. 13, 1898.

205. MONTICOLA RUFICINEREA.

Monticola rufocinerea (Rüpp.); Sharpe, Ibis, 1892, p. 161; Reichen. Vög. deutsch. Ost-Afr. p. 235 (1894) (Lake Naivasha); Shelley, B. Africa, i. p. 89 (1896); Ogilvie Grant, Ibis, 1900, p. 163.

No. 322. ♂ ad. Kamassia, 6000 feet, Aug. 23, 1896. Iris brown; bill and feet black. Plentiful on the Mau plateau in open bush.

206. PRATINCOLA RUBETRA.

Pratincola rubetra (L.); Reichen. Vög. deutsch. Ost-Afr. p. 234 (1894); Shelley, B. Africa, i. p. 85 (1896); Hartert, Nov. Zool. vii. p. 52 (1900); Ogilvie Grant, Ibis, 1900, p. 167; O. Neum. J. f. O. 1900, p. 312.

a, b. ♂ ♀ ad. Kampala, March 23, 1895.

No. 1006. ♂ ad. Nandi, 6500 feet, April 17, 1898. June 1. With the exception of the Stonechat there are no Chats about at this place.

207. PRATINCOLA AXILLARIS.

Pratincola axillaris Shelley; Sharpe, Ibis, 1892, p. 161; Reichen. Vög. deutsch. Ost-Afr. p. 234 (1894); Shelley, B. Africa, i. p. 86 (1896); Hartert, Nov. Zool. vii. p. 52 (1900); O. Neum. J. f. O. 1900, p. 312; Hinde, Ibis, 1900, p. 499.

No. 31. ♂ ad. Ravine, Mau, March 9, 1896. Iris brown; bill and feet black.

Nos. 150, ♂ ad.; 151, ♀ imm. Nandi, 6500 feet, July 4, 1896.

Nos. 159, 160. ♂ ♀ juv. Nandi, 6500 feet, July 6, 1896.

No. 207. ♂ ad. Ravine, July 30, 1896.

No. 483. ♂ ad. Ravine, Feb. 25, 1897.

Plentiful and resident throughout the year. Generally seen in pairs or singly, perched on a dead tree or stump, from which it keeps a sharp look-out for its prey: this it takes for the most part on the ground, though it often captures insects on the wing, after the manner of a Flycatcher. It is a confiding little bird, and appears to be partial to the vicinity of dwellings, frequenting the shambas both deserted and cultivated, where it doubtless finds its food more abundant.

No. 550. ♂ ad. Ravine, March 21, 1897.

No. 1138. Juv. Nandi, 6500 feet, May 23, 1898.

No. 1144. ♂ ad. Nandi, 6500 feet, May 24, 1898.

No. 1273. ♂ imm. Nandi, 6500 feet, May 30, 1898.

208. SAXICOLA ŒNANTHE.

Saxicola œnanthe (L.); Sharpe, Ibis, 1892, p. 162; Reichen. Vög. deutsch. Ost-Afr. p. 236 (1894); Sharpe, P. Z. S. 1895, p. 486; Shelley, B. Africa, i. p. 90 (1896); Hinde, Ibis, 1898, p. 581 (Machako's, Dec. to March); Hartert, Ansorge's Afr. Sun, p. 354 (1899); Ogilvie Grant, Ibis, 1900, p. 165; O. Neum. J. f. O. 1900, p. 313.

No. 32. ♂ ad. Ravine, Mau, March 15, 1896. Iris brown; bill and feet black.

Nos. 53, 54. ♂ ♀ ad. Ravine, March 24, 1896.

No. 385. ♀ ad. Njemps, Sept. 26, 1896. Plentiful.

No. 889. ♂ ad. Ravine, 7500 feet, Feb. 25, 1898.

Nos. 892, 897. ♂ ♀ ad. Ravine, 7500 feet, March 4, 1898.

209. SAXICOLA ISABELLINA.

Saxicola isabellina Cretzschm.; Sharpe, Ibis, 1892, p. 162; Reichen. Vög. deutsch. Ost-Afr. p. 236 (1894) (Kipini); Sharpe, P. Z. S. 1895, p. 485; Shelley, B. Africa, i. p. 90 (1896); Hartert, Ansorge's Afr. Sun, p. 354 (1899); id. Nov. Zool. vii. p. 52 (1900); Ogilvie Grant, Ibis, 1900, p. 166; O. Neum. J. f. O. 1900, p. 313.

No. 467. Imm. Ravine, Mau, Feb. 19, 1897. Iris brown; bill and feet black.

No. 694. ♂ juv. Ravine, Aug. 25, 1897.

No. 890. ♂ ad. Ravine, 7500 feet, Feb. 25, 1898.

Nos. 891, 895, 896. ♂ ad. Ravine, 7500 feet, March 4, 1898.

210. SAXICOLA SCHALOWI.

Saxicola schalowi Fisch. & Reichen.; Sharpe, Ibis, 1892, p. 163; Reichen. Vög. deutsch. Ost-Afr. p. 237 (1894: Lake Naivasha); Shelley, B. Africa, i. p. 91 (1896); O. Neum. J. f. O. 1900, p. 313.

No. 16. ♂ ad. Lake Naivasha, Jan. 4, 1896. Iris brown; bill and legs black. This Chat was plentiful along the eastern shore of Lake Naivasha, particularly in the hills to the east.

No. 61. ♀ ad. Lake Naivasha, April 4, 1896.

No. 756. ♂ ad. „ Aug. 10, 1897.

211. SAXICOLA PLESHANKA.

Saxicola morio H. & E.; Sharpe, Ibis, 1892, p. 162; Hinde, Ibis, 1898, p. 581.

Saxicola pleshanka (Lepech.); Reichen. Vög. deutsch. Ost-Afr. p. 237 (1894); Shelley, B. Africa, i. p. 91 (1896); Hartert, Ansorge's Afr. Sun, p. 354 (1899); id. Nov. Zool. vii. p. 52 (1900); O. Neum. J. f. O. 1900, p. 313.

No. 531. ♂ ad. Ravine, Mau, March 15, 1897. Iris brown; bill and feet black. Sings very sweetly, and has two notes emitted at the same time, so different in sound, that they appear as if there were two birds calling instead of one.

Nos. 893, 914. ♂ ad. Ravine, 7500 feet, March 4, 9, 1898.

212. SAXICOLA PILEATA.

Saxicola livingstonei Tristr.; Sharpe, Ibis, 1892, p. 163; Reichen. Vög. deutsch. Ost-Afr. p. 236 (1894).

Saxicola pileata Gm.; Shelley, B. Africa, i. p. 90 (1896).

Saxicola pileata albinotata O. Neum. J. f. O. 1900, p. 313.

Campicola livingstonei Tristr.; Hinde, Ibis, 1900, p. 499.

Nos. 732, 733. ♂ ad. Lake Naivasha, Aug. 7, 1897.

No. 814. ♂ ad. Lake Naivasha, Aug. 29, 1897.

No. 1011. ♀ ad. Nandi, 6500 feet, April 19, 1898. One of a pair breeding near the fort. Failed to find its nest, which is made in a rat- or other hole in the ground.

[I am afraid that the white tips to the tail-feathers, on which Mr. Oscar Neumann relies for his *Saxicola albinotata*, are not a stable character. Not all of Mr. Jackson's specimens show them, while, on the contrary, they are present in many South-African examples, and are, I believe, only a sign of fresh plumage, disappearing with age.—R. B. S.]

213. MYRMECOCICHLA NIGRA.

Myrmecocichla nigra (V.); Reichen. Vög. deutsch. Ost-Afr. p. 235 (1894) (Bukoba); Shelley, B. Africa, i. p. 91 (1896); Hartert, Ansorge's Afr. Sun, p. 354 (1899); id. Nov. Zool. vii. p. 52 (1900); O. Neum. J. f. O. 1900, p. 312.

a. ♂ ad. Ntebi, April 24, 1895.

b. ♂ ad. „ Aug. 27, 1895.

214. MYRMECOCICHLA CRYPTOLEUCA.

Myrmecocichla cryptoleuca Sharpe, Ibis, 1892, p. 163; Reichen. Vög. deutsch. Ost-Afr. p. 234 (1894) (Lake Naivasha); Shelley, B. Africa, i. p. 91 (1896); Hartert, Ansorge's Afr. Sun, p. 354 (1899); id. Nov. Zool. vii. p. 52 (1900); O. Neum. J. f. O. 1900, p. 312; Hinde, Ibis, 1900, p. 498.

a. ♂ ad. Lake Naivasha, Nov. 4, 1894. Iris brown; bill black; feet olive-black.

No. 527. ♂ juv. Ravine, March 12, 1897.

No. 633. ♀ ad. „ April 15, 1897. Plentiful.

No. 672. ♀ ad. „ July 19, 1897.

No. 1090. ♂ ad. Nandi, 6500 feet, May 9, 1898.

Nos. 1271, 1272. ♂ ♀ ad. Nandi, 6500 feet, July 7, 1898. Fairly plentiful in Nandi. Confined to open ground, where it may be seen sitting on some bush, dead twig, or ant-heap. Except during the breeding-season, these birds go about in small companies, perhaps family-parties, of three or four together. Their flight is weak, and they rarely go far at a time. When flying they move their wings very rapidly. They breed in large holes in the ground.

Fam. TIMELIIDÆ.

215. CRATEROPUS BUXTONI.

Crateropus buxtoni Sharpe, Ibis, 1892, p. 164; Shelley, B. Africa, i. p. 58 (1896).

No. 332. ♀ ad. Kamassia, 6500 feet, Aug. 24, 1896. Iris bright yellow; bill black; feet dark horn-blue. Plentiful in family-parties.

[Agrees with the typical specimens in the Museum and in Mr. Jackson's first collection. *C. buxtoni* is a lighter and greyer bird than *C. plebeius* and inclines to white on the lower abdomen, while the chin is pure white, in strong contrast to the throat.—R. B. S.]

216. CRATEROPUS SHARPII.

Crateropus sharpei Reichen. J. f. O. 1892, p. 56; id. Vög. deutsch. Ost-Afr. p. 218 (1894); Shelley, B. Africa, i. p. 58 (1896); Hartert, Nov. Zool. vii. p. 49 (1900); O. Neum. J. f. O. 1900, p. 302.

a. ♂ ad. Ntebi, May 11, 1895. Iris white; bill black: feet dusky black.

Nos. 966, 967. ♂ ♀ ad. Nandi, 6500 feet, April 10, 1898. Iris silvery white; bill black; feet dark brown. Breeding. Nest very roughly made of dry grass-stems, in a bush covered with dead creepers.

Nos. 1156, ♀ ad.; 1157, 1158, ♂ ad. Nandi, 6500 feet, May 26, 1898. Feet slaty black. Goes about in small parties of four or six, and is found only in open bush country. It is a noisy bird, is very shy, and has a most annoying way of sneaking out of shelter, one bird after the other, with a short interval between each, leaving the opposite side of a bush as anyone approaches. I have known this action to be repeated several times from bush to bush without the chance of a shot being offered.

No. 1177. ♂ juv. Nandi, 6500 feet, May 30, 1898.

217. CRATEROPUS PLEBEIUS.

Crateropus plebeius (Rüpp.); Shelley, B. Africa, i. p. 58 (1896).

No. 202. ♀ ad. Ravine, July 28, 1896. Iris yellow; bill black; feet slaty black. In small family-parties. Plentiful.

Nos. 692, ♀ ad.; 693, ♂ juv. Ravine, July 25, 1897.

[These birds agree with a specimen of the true *C. plebeius* from Lado.—R. B. S.]

218. ARGYA RUFULA.

Argya rufula Heugl. Orn. N.O.-Afr. iv., App. p. cccxii (1874); Reichen. Vög. deutsch. Ost-Afr. p. 219 (1894); Sharpe, P. Z. S. 1895, p. 488; Shelley, B. Africa, i. p. 58 (1896); Hartert, Afr. Sun, App. p. 352 (1899); O. Neum. J. f. O. 1900, p. 302.

No. 325. ♂ ad. Kamassia, 6000 feet, Aug. 23, 1896. Iris dull ochreous yellow; bill dusky brown, lower mandible paler; feet pale horn-blue.

219. TURDINUS JACKSONI.

Turdinus jacksoni Sharpe, Bull. B. O. C. xi. p. 29 (Nov. 1900).

No. 1001. ♂ ad. Nandi, 6500 feet, April 17, 1898. Iris hazel; bill brown, lower mandible horn-blue; feet horn-blue. First seen. In thick bush, three together.

No. 1037. ♀ ad. Nandi, 6500 feet, April 24, 1898.

[This species seems to be very distinct, and I cannot find any description which agrees with it. The dusky head and grey face with the lighter grey throat and breast, in contrast with the rufescent-brown flanks, appear to me to constitute remarkable characters. I have named the species after Mr. Jackson.—R. B. S.]

220. ALCIPPE ABYSSINICA.

Alcippe kilimensis Shelley; Reichen. Vög. deutsch. Ost-Afr. p. 227 (1894) (Kilimanjaro); Shelley, B. Africa, i. p. 66 (1896); id. op. cit. ii. pt. 2, p. 210, pl. xi. fig. 1 (1900); O. Neum. J. f. O. 1900, p. 309.

Lioptilus abyssinicus (Rüpp.); Ogilvie Grant, Ibis, 1900, p. 173.

No. 407. ♀ ad. Ravine, Oct. 21, 1896. Iris crimson-brown; bill black, lower mandible horn-blue; feet horn-blue. Plentiful.

No. 625. Ad. Ravine, April 13, 1897. Iris brown; bill dusky black, lower mandible horn-white; feet horn-blue. First seen. Shot in tall trees as it came in to roost.

Nos. 660, 665, 705. ♂ ad. Ravine, July 17, 27, 1897.

Nos. 1014, 1034, ♂ ad.; 1039, ♀ ad. Nandi, 6500 feet, April 20, 25, 26, 1898. Iris dull crimson; bill dull black, tip and lower mandible horn-blue. Creeps about in thick bush.

No. 1087. ♂ ad. Nandi, 6500 feet, May 9, 1898. Iris dark crimson-brown; bill dusky black with slaty tint; lower mandible pale horn-blue; feet pale horn-blue.

Nos. 1146, 1147. ♂ ♀ ad. Nandi, 6500 feet, May 24, 1898.

Fam. PYCNONOTIDÆ.

221. XENOCICHLA PALLIDIGULA.

Xenocichla pallidigula Sharpe, Bull. B. O. C. vii. p. vii (1897).

Xenocichla flavicollis pallidigula O. Neum. J. f. O. 1900, p. 292.

a. ♂. Ntebi, March 8, 1895.

222. XENOCICHLA KAKAMEGÆ.

Xenocichla kakamegæ Sharpe, Bull. B. O. C. xi. p. 29 (Nov. 1900).

X. similis *X. tephrolæmati* Gray, sed minor, rostro multo breviore et latiore, notæo olivaceo-viridi, pileo et facie laterali schistaceis, gutture pallidè cinereo; præpectore viridescente; corporis lateribus olivascenti-viridibus, pectore medio et abdomine pallidioribus et lætiore flavido lavatis; subalaribus olivaceo-viridibus, majoribus et remigibus intùs pallidè cineraceis, vix flavo tinctis. Long. tot. 6·7 poll., culm. 0·55, alæ 3·3, caudæ 2·95, tarsi 0·75.

No. 843. ♂. Kakamega Forest, Feb. 8, 1898. Iris brown; bill black, the lower mandible slate-colour; feet horn-blue.

[This seems to be a small species of *Xenocichla*, allied to *X. tephrolæma* of the Cameroons. The bill is very much smaller than in the latter, the throat is a lighter grey, followed by olive-green on the fore-neck, with the breast and abdomen greyish olive, and with a slight wash of yellow instead of the clear yellow of *X. tephrolæma*, which has also the under wing-coverts and quill-lining bright yellow. In *X. kakamegæ* the quill-lining is ashy.—R. B. S.]

223. XENOCICHLA KIKUYUENSIS.

Xenocichla kikuyuensis Sharpe, Ibis, 1892, p. 299; O. Neum. J. f. O. 1900, p. 293; Sharpe, P. Z. S. 1900, p. 608.

Criniger kikuyuensis Shelley, B. Africa, i. p. 63 (1896).

No. 105. ♂ ad. Ravine, June 20, 1896. Iris brown; bill black; feet horn-blue. Plentiful in small family-parties in thick bush.

No. 180. ♂ ad. Ravine, 8500 feet, July 12, 1896. Feet greenish horn-colour. In thick forest.

No. 655. ♂ ad. Ravine, July 15, 1897. Feet greenish slate-colour.

224. PHYLLOSTROPHUS PLACIDUS.

Phyllostrophus placidus (Shelley); Reichen. Vög. deutsch. Ost-Afr. p. 206 (1894) (Kilimanjaro).

Criniger placidus Shelley, B. Africa, i. p. 63 (1896); O. Neum. J. f. O. 1900, p. 294.

Xenocichla placida Jackson, Ibis, 1898, p. 139 (Witu).

No. 42. ♀ ad. Ravine, Mau, March 21, 1896. Iris stone-grey; bill black, base of lower mandible horn-blue; feet horn-blue.

No. 347. ♀ ad. Ravine, 7500 feet, Aug. 30, 1896. Iris yellowish; bill black, with lower mandible horn-blue.

No. 594. ♂ ad. Ravine, March 31, 1897. Iris ochreous brown; bill very dark brown, lower mandible horn-blue; feet horn-blue with a greenish tint.

[These specimens agree fairly well with the type in the

Museum, but the latter has rather more rufous wings and tail.—R. B. S.]

225. CHLOROCICHLA GRACILIROSTRIS.

Criniger gracilirostris (Strickl.); Shelley, B. Africa, i. p. 63 (1896).

Andropadus gracilirostris O. Neum. J. f. O. 1900, p. 292.

No. 870. ♂ ad. Nandi, 6500 feet, Feb. 15, 1898. First seen. Three of them in thick bush.

No. 1045. ♀ ad. Nandi, 6500 feet, April 29, 1898. Iris bright crimson-brown; bill black; feet brownish black.

No. 1122. ♀ ad. Nandi Forest, 6000 feet, May 19, 1898. Evidently a plentiful bird in the thick forest, to judge by the large number that were attracted by the small yellow fruits growing in clusters on a tall tree in a clearing. It is only on such occasions that opportunity offers of getting a really good view of this bird and other members of the family, as they rarely leave the thick bush at other times and are exceedingly difficult to see. They are noisy birds and go about in small parties of three or four together.

No. 1256. ♀ ad. Nandi, 6500 feet, July 2, 1898. Iris bright dark crimson; bill and feet black. A bush-lover and, although plentiful, not often seen until the various trees are in fruit.

226. ANDROPADUS LÆTISSIMUS.

Andropadus lætissimus Sharpe, Bull. B. O. C. x. p. xxvii (1899).

Xenocichla hypoxantha Sharpe, MSS.; Hartert, Nov. Zool. vi. p. 48 (1898).

No. 840. ♀ ad. Kakamega Forest, Feb. 8, 1898. Iris crimson-brown; feet horn-blue; bill black.

No. 1129. ♂ ad. Nandi Forest, 6000 feet, May 19, 1898. Type of species. Iris light brown; bill brownish black; feet dusky horn-blue.

Saw three others. It is evidently a rare bird.

[I am sorry that I caused my excellent friend Mr. Hartert to publish a *nomen nudum*. I at first determined the species as a *Xenocichla* and affixed to it the name *hypoxantha*, as it was so much yellower than all the African species. I afterwards came to the conclusion that it was an *Andropadus*, and called it *A. lætissimus*.—R. B. S.]

227. ANDROPADUS EUGENIUS.

Andropadus eugenius Reichen. J. f. O. 1892, p. 53 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 205 (1894); Shelley, B. Africa, i. p. 61 (1896); Hartert, Ansorge's African Sun, p. 349 (1899); id. Nov. Zool. vii. p. 47 (1900).

Andropadus latirostris eugenius O. Neum. J. f. O. 1900, p. 292.

No. 112. ♂ ad. Ravine, June 2, 1896. Iris brown; bill dark brown with yellowish-horn tip; gape yellow; feet dull ochreous yellow.

No. 631. ♀ imm. Ravine, April 15, 1897. Bill dusky black, base of lower mandible yellow; feet yellowish flesh-colour, toes dusky.

No. 839. ♂ imm. Kakamega Forest, Kavirondo, Feb. 8, 1898.

No. 1195. ♂ ad. Nandi, 6500 feet, June 7, 1898. Bill very dark brown, with tip and edges bright reddish brown, tip of upper mandible serrated; gape yellow; feet brownish yellow.

228. ANDROPADUS VIRENS.

Andropadus virens Cass.; Reichen. J. f. O. 1892, p. 53 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 205 (1894); Shelley, B. Africa, i. p. 61 (1896); Hartert, Nov. Zool. vi. p. 48 (1900); O. Neum. J. f. O. 1900, p. 291.

a. ♂. Ntebi, April 21, 1895.

b. ♂. „ June 5, 1896. Feet pale brown.

No. 951. ♂ ad. Nandi Forest, 5000 feet, April 9, 1898. Iris brown; bill brownish black; feet pale olive-green.

229. PYCNONOTUS LAYARDI.

Pycnonotus layardi Gurney; Reichen. Vög. deutsch. Ost-Afr. p. 207, fig. 94 (1894); Shelley, B. Africa, i. p. 60 (1896); O. Neum. J. f. O. 1900, p. 294; Sharpe, P. Z. S. 1900, p. 608.

No. 401. ♂ ad. Ravine, Oct. 10, 1896. Iris brown; bill and feet black.

No. 463. ♂ ad. Ravine, Feb. 18, 1897. Nest in bush, fifteen feet from the ground, made of small and fine twigs and lined with very fine grass.

Nos. 464, 465. ♂ ♀ juv. Ravine, Feb. 18, 1897. Iris brown; bill dusky black, gape pale yellowish white; feet dull black.

No. 557. ♂ ad. Ravine, March 26, 1897.

No. 856. ♂ ad. Nandi, 6500 feet, Feb. 12, 1898.

No. 1044. ♀ ad. Nandi, 6500 feet, April 29, 1898. Plentiful everywhere throughout Nandi. Now in pairs.

Nos. 1055, 1072, 1073. ♂ ad. Nandi, 6500 feet, May 2, 5, 1898.

Fam. CAMPOPHAGIDÆ.

230. GRAUCALUS PURUS.

Graucalus purus Sharpe, Ibis, 1891, p. 121; Shelley, B. Africa, i. p. 50 (1896); O. Neum. J. f. O. 1900, p. 261; Sharpe, P. Z. S. 1900, p. 608.

Graucalus cæsius (nec Licht.); Ogilvie Grant, Ibis, 1900, p. 171.

No. 43. ♀ ad. Ravine, March 21, 1896. Iris brown; bill and feet black. Fairly plentiful in the thick forest and clumps of tall trees.

Nos. 102, 109. ♂ ad. Ravine, June 20, 22, 1896.

No. 116. ♀ ad. Ravine, June 24, 1896.

No. 219. ♂ ad. Mau plateau, 8700 feet, August 3, 1896. In thick forest, and plentiful throughout the forest-regions in the vicinity of the Ravine.

No. 588. ♂ ad. Ravine, March 31, 1897.

No. 904. ♂ ad. „ 7500 feet, March 6, 1898.

No. 918. ♂ ad. Nandi, 6500 feet, March 20, 1898.

No. 1120. ♀ ad. „ „ May 19, 1898. Iris almost black. Found in thick forest, where it creeps about in the foliage of the tallest trees looking for caterpillars, beetles, and so forth. Occasionally it may be seen taking insects on the wing like a Flycatcher.

No. 1214. ♂ ad. Nandi, 6500 feet, June 15, 1898.

No. 1269. ♀ juv. „ „ July 5, 1898. Feet slaty black.

In its habit of sitting for some little time on a dead branch, peering about with head cocked on one side, and then suddenly darting up and pulling off an insect from the underside of a leaf, this bird resembles a Flycatcher. It also takes insects on the wing. It is mostly found singly or in pairs.

231. CAMPOPHAGA PHŒNICEA.

Campophaga phœnicea (Lath.); Shelley, B. Africa, i. p. 50 (1896); Sharpe, Bull. B. O. C. vi. p. xlviii (1897: Ntebi); Ogilvie Grant, Ibis, 1900, p. 172; O. Neum. J. f. O. 1900, p. 261.

a. ♂ ad. Ntebi, May 4, 1895. Bill black, gape with purple tint; feet black; iris brown.

232. CAMPOPHAGA QUISCALINA.

Campophaga quiscalina Finsch; Shelley, B. Africa, i. p. 50 (1896).

No. 46. ♂ ad. Ravine, March 21, 1896. Iris brown; bill and feet black; gape bright orange.

No. 688. ♀ ad. Ravine, July 23, 1897.

No. 1013. ♂ ad. Nandi, 6500 feet, April 20, 1898.

No. 1056. ♂ ad. „ „ May 20, 1898.

No. 1101. ♂ ad. „ „ May 12, 1898.

233. CAMPOPHAGA HARTLAUBI.

Campophaga hartlaubi (Salvad.); Reichen. Vög. deutsch. Ost-Afr. p. 153 (1894) (Great Aruscha); Shelley, B. Africa, i. p. 50 (1896).

No. 103. ♀ ad. Ravine, June 20, 1896. Iris brown; bill and feet black. Scarce. Creeps about in tops of high trees, darting out to catch insects on the wing.

No. 1260. ♀ ad. Nandi, 6500 feet, July 3, 1898. Iris very dark brown, nearly black; bill black, gape orange; feet dull slaty black. Scarce. Confined to forest. Hunts about amongst the foliage of tall trees. Stomach contained several examples of the green Mantis.

a. ♂ ad. Nandi, 6500 feet.

234. CAMPOPHAGA NIGRA.

Campophaga nigra (V.); Reichen. Vög. deutsch. Ost-Afr. p. 153 (1894); Shelley, B. Africa, i. p. 50 (1896); O. Neum. J. f. O. 1900, p. 261.

No. 23. ♀ imm. Kibwezi, 3000 feet, March 2, 1892.

Nos. 53, ♂ juv.; 54, ♀ ad. Kibwezi, 3000 feet, March 14, 1892.

No. 343. ♂ ad. Ravine, 7500 feet, Aug. 30, 1896. Iris black; bill black, soft part of gape dull orange; feet black.

No. 605. ♀ ad. Ravine, July 4, 1897. Iris very dark brown; bill black, gape yellow.

No. 621. ♀ ad. Ravine, July 21, 1897.

Nos. 901, ♀; 913, ♂ ad. Ravine, 7500 feet, March 5, 9, 1898. In thick forest.

No. 1036. ♀ ad. Nandi, 6500 feet, April 26, 1898.

No. 1233. ♂ ad. „ „ June 24, 1898.

Fam. MUSCICAPIDÆ.

235. MUSCICAPA GRISOLA.

Muscicapa grisola L.; Reichen. J. f. O. 1892, p. 32; id. Vög. deutsch. Ost-Afr. p. 152 (1894); Sharpe, P. Z. S. 1895, p. 490; Shelley, B. Africa, i. p. 94 (1896); Ogilvie Grant, Ibis, 1900, p. 173.

Muscicapa grisola sibirica, O. Neum. J. f. O. 1900, p. 259.

Nos. 37, 65. ♀ ad. Kibwezi, 3000 feet, March 9, 17, 1892.

No. 98. ♂ ad. Ndi, Teita, April 6, 1892.

No. 30. ♀ ad. Ntebi, Sept. 24, 1895.

No. 47. ♂ ad. „ Oct. 2, 1895.

No. 38. ♂ ad. Ravine, March 18, 1896. Iris brown; bill black, with base of lower mandible yellowish white; feet brownish black. The first specimen observed here.

236. MUSCICAPA INFULATA.

Muscicapa infulata Hartl.; Reichen. J. f. O. 1892, p. 33.

Alseonax infulata Shelley, B. Africa, i. p. 94 (1896).

No. 61. ♂ imm. Ntebi, Oct. 7, 1895.

237. DIOPTRORNIS FISCHERI.

Dioptrornis fischeri Reichen.; Vög. deutsch. Ost-Afr. p. 151 (1894); Hinde, Ibis, 1898, p. 581 (Machako's); Hartert, Ansorge's African Sun, p. 338 (1899) (Eldoma Ravine); O. Neum. J. f. O. 1900, p. 257; Sharpe, P. Z. S. 1900, p. 608.

Muscicapa fischeri (Reichen.); Shelley, B. Africa, i. p. 94 (1896).

Nos. 100, 110. ♂ ad. Ravine, June 19, 22, 1896. Iris brown; bill horn-blue, with extreme tip black; feet olive-black. Plentiful in the forest on the edges of open spaces.

Nos. 126, 127. ♂ ♀ ad. Nandi, 6500 feet, June 29, 1896.

No. 136. ♂ imm. Nandi, 6500 feet, July 2, 1896.

No. 473. ♂ ad. Ravine, Feb. 20, 1897.

Very plentiful. Frequents both bush and tall trees. Though this bird is very like a Flycatcher in habits, it cannot be considered a true Flycatcher. For the most part it takes its prey on the wing, but often from the ground. Some of its habits resemble those of a *Bradyornis*. Found singly or two or three together. Builds its nest high up in a tree.

No. 518. ♀ juv. Ravine, March 7, 1897. Iris brown; bill pale horn-blue with dusky tip, gape yellow, base of lower mandible pale horn-blue with yellowish tint; feet pale horn-blue, toes slate-colour.

No. 541. ♀ ad. Ravine, March 19, 1897. Breeding. Nest with two eggs in cleft of dead tree thirty feet from the ground. Found the nest of this bird by seeing the male (which I also shot, but lost in a large mass of weeds &c.) sitting on a branch above the nest and peeping down at the female as she sat upon it, evidently to satisfy himself that all was well.

No. 611. ♂ ad. Ravine, April 6, 1897.

No. 879. ♂ ad. Nandi, 6500 feet, Feb. 17, 1898.

I believe some doubt has been expressed as to this bird being a Flycatcher. If habits have anything to do with classification it certainly is so beyond any doubt. When feeding it resembles both the Spotted Flycatcher and the Robin, as it takes its prey both on the wing and on the ground. It reminds me very much of the Robin when sitting on the lower branches of a tree, generally a dead one, with head cocked on one side, on the look-out for some insect on the ground, pouncing on and devouring it, and then returning to the same or to another perch. In its nesting-habits it is a Flycatcher, making a nest of dry leaves, moss, fibre, and hair on a branch or in the fork of a tree. Eggs two—much spotted with brown—very like, but darker than, those of the Spotted Flycatcher.

238. ALSEONAX MURINA.

Muscicapa murina (Fischer & Reichen.); Reichen. Vög. deutsch. Ost-Afr. p. 153 (1894) (Bukoba); Shelley, B. Africa, i. p. 94 (1896).

Alseonax murina Hinde, Ibis, 1898, p. 511 (Machako's); Ogilvie Grant, Ibis, 1900, p. 173; O. Neum. J. f. O. 1900, p. 260.

No. 35. ♂ ad. Ravine, March 17, 1896. Iris brown; bill and feet black. Fairly plentiful at the Ravine. Exactly like our own Flycatcher in habits, returning again and again to the same perch; but this custom appears to be nearly universal with all the Flycatchers and Bee-eaters.

No. 41. ♂ ad. Ravine, March 21, 1896. Bill black, base of lower mandible pale dusky yellow; feet black. Seen in pairs, evidently about to breed.

No. 481. ♂ ad. Ravine, Feb. 24, 1897. In habits this small Flycatcher is exactly like our common bird at home. It is often seen sitting on dead twigs at the top of the tallest trees, darting out every now and again at some fly or other insect and returning to the same twig.

No. 601. ♀ ad. Ravine, April 3, 1897.
No. 862. ♀ ad. Nandi, 6500 feet, Feb. 13, 1898.
No. 878. ♀ ad. „ „ Feb. 17, 1898.
No. 1246. ♂ ad. „ „ June 27, 1898.

239. PACHYPRORA PUELLA.

Pachyprora molitor (Hahn & Küster); Shelley, B. Africa, i. p. 98 (1896, partim).

Batis molitor Hinde, Ibis, 1898, p. 581 (Machako's).

Pachyprora molitor puella Reichen.; O. Neum. J. f. O. 1900, p. 256.

Nos. 38, 39. ♂ ♀ ad. Kibwezi, 3000 feet, March 9, 1892.

Nos. 94, 95. ♂ ♀ ad. Ravine, June 17, 1896. Iris bright green; bill and feet black. Plentiful in the thick bush and forest.

No. 316. ♂ ad. Kamassia, 4000 feet, Aug. 22, 1896. Iris green, with inner circle of yellow.

No. 437. ♂ ad. Ravine, Dec. 10, 1896.

Nos. 616, 617. ♀ ad. Ravine, April 10, 1897. Plentiful either in pairs or three or four together. Makes a curious whirring noise with its wings as it flies from tree to tree. Catches flies on the wing. Very restless and always on the search. Very fond of sitting on the lower dead twigs under the shady green tops of acacia and other trees, which attract various insects. It darts out and seizes flies, &c., on the wing, or hovers like a Sun-bird so as to enable it to pick off a beetle from the underside of a leaf.

Nos. 980, 981. ♂ ad. Nandi, 6500 feet, April 13, 1898.

No. 1229. ♀ ad. Nandi, 6500 feet, June 22, 1898.

240. PLATYSTIRA ALBIFRONS.

Platystira albifrons Sharpe; Reichen. J. f. O. 1892, p. 35 (Bukoba); Shelley, B. Africa, i. p. 97 (1896).

a. ♂ ad. Ntebi, Aug. 9, 1895. Bill black; shield above eye vermilion; feet black; iris blue-grey, with very thin white line separating it from the pupil.

Nos. 41, ♀ ad.; 49, 52, ♂ ad. Ntebi, Oct. 2, 3, 1895.

241. PLATYSTIRA JACKSONI.

Platystira jacksoni Sharpe, Ibis, 1891, p. 445; id. op. cit. 1892, p. 301, pl. vii. fig. 2; Shelley, B. Africa, i. p. 97 (1896).

No. 236. ♂ ad. Elgeyu, 5000 feet, Aug. 11, 1896. Iris grey-brown; shield above the eye dark coral-red; bill black;

feet very dark horn-blue. Rare. Lost another specimen in dense undergrowth.

Nos. 863, 864. ♀ ♂ ad. Nandi, 6500 feet, Feb. 14, 1898. ♀. Iris dark brown, with fine silver inner ring next to pupil, lower eyelid dull dark brown; shield coral-red. ♂. Lower eyelid brown with yellow wrinkles, shield bright coral-red. These birds are generally found in pairs or small family-parties of from three to five in number.

Nos. 974, 975. ♂ ♀ ad. Nandi, 6500 feet, April 12, 1898.

No. 976. ♂ juv. Nandi, 6500 feet, April 12, 1898. Iris dark crimson brownish, eye-shield coral-red, lower half brown; bill dull black; feet slate-colour.

[The male of this species differs from the male of *P. peltata* in being altogether blacker above, and not greyish on the back as is the latter. The female of *P. jacksoni* is blue-black on the head and throat, whereas that of *P. peltata* has a bottle-green shade.—R. B. S.]

242. Cryptolopha mackenziana. (Plate III. fig. 1.)

Cryptolopha mackenziana Sharpe, Ibis, 1892, p. 153 (Kikuyu, Mount Elgon); Shelley, B. Africa, i. p. 70 (1896); Neumann, J. f. O. 1900, p. 300.

Camaroptera dorcadichroa Reichen. & Neum. Orn. MB. 1895, p. 73.

a. ♂ ad. Mau, 8700 feet, Oct. 30, 1895. Bill dusky, lower mandible pale flesh-colour; feet horn-blue; iris brown.

[This synonymy is derived from Mr. Oscar Neumann's paper, but the Kilimanjaro bird seems to me to have more yellow in the centre of the breast, and I think that it is quite possible that *Cryptolopha dorcadichroa* is distinct from *C. mackenziana*.—R. B. S.]

243. Chloropeta massaica.

Chloropeta massaica Fischer & Reichen.; Reichen. Vög. deutsch. Ost-Afr. p. 149 (1894) (Kilimanjaro); Shelley, B. Africa, i. p. 96 (1896); Jackson, Ibis, 1898, p. 139 (Witu); Ogilvie Grant, Ibis, 1900, p. 174 (Konduro).

No. 1025. ♂ ad. Nandi, 6500 feet, April 22, 1898. Iris brown; bill brown, lower mandible pinky horn; feet slate-colour. First seen in a marsh, where it was catching flies like an ordinary Flycatcher, June 1, 1898. Evidently a rare bird, as only two others have been observed; one near the fort, the other near the marsh, where the first was obtained.

244. BIAS MUSICUS.

Bias musicus (V.); Reichen. Vög. deutsch. Ost-Afr. p. 149 (1894); Shelley, B. Africa, i. p. 96 (1896); Sharpe, Bull. B. O. C. vi. p. xlviii (1897: Ntebi).

a, b. ♂ ♀ ad. Ntebi, May 29, 1895. Iris yellow; bill black; feet greenish yellow.

245. TERPSIPHONE CRISTATA.

Terpsiphone cristata (Gm.); Reichen. J. f. O. 1892, p. 33 (Bukoba, Sesse Isl., Mengo); Sharpe, P. Z. S. 1895, p. 490; Shelley, B. Africa, i. p. 99 (1896); Ogilvie Grant, Ibis, 1900, p. 174; O. Neum. J. f. O. 1900, p. 227; Sharpe, P. Z. S. 1900, p. 609.

No. 978. ♂ ad. Nandi, 6000 feet, April 12, 1898. Iris brown; eyelids pale violet-blue; bill dark horn-blue with black tip; feet horn-blue.

No. 1257. ♀ ad. Nandi, 6500 feet, July 2, 1898. Iris very dark brown; eyelids leaden blue; bill leaden blue with black tip; feet horn-blue. Scarce in Nandi. Very restless and constantly on the move, flitting about tall trees, twisting and bending about in pursuit of flies and insects on the wing.

246. TROCHOCERCUS ALBINOTATUS.

Trochocercus albonotatus Sharpe, Ibis, 1891, p. 121; id. op. cit. 1892, p. 303, pl. vii. fig. 1; Shelley, B. Africa, i. p. 99 (1896); O. Neum. J. f. O. 1900, p. 229.

a. ♂ ad. Mau Forest, 8000 feet, Dec. 20, 1895.

Nos. 195, 211. ♂ ♀ juv. Ravine, July 23, 31, 1896. Iris brown; bill and feet black. In thick forest. Spreads out its tail like a fan and constantly turns it from side to side as it darts about in thick foliage in search of insects.

No. 406. ♂ ad. Ravine, Oct. 21, 1896.

No. 1116. ♂ ad. Nandi, 6000 feet, May 19, 1898.

This little bird is a lover of the thick forest with an undergrowth of tall bush and small trees. Here it flits and darts about in search of insect-food, much of which it takes on the wing, after the manner of the true Flycatchers. Like the small blue *Elminia longicauda* and the species of *Apalis*, it has a curious habit of spreading out its tail and holding it perpendicularly above its back, swaying it from side to side as it hops about. It is very active and nearly always on the move.

247. ELMINIA LONGICAUDA.

Elminia teresita Antin.; Sharpe, Ibis, 1892, p. 304.

Elminia longicauda (Sw.); Reichen. J. f. O. 1892, p. 33 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 149 (1894); Shelley, B. Africa, i. p. 98 (1896); O. Neum. J. f. O. 1900, p. 229.

Nos. 36, 37, ♂ ad., ♀ juv. Ntebi, Sept. 30, 1895.

No. 43. ♀ ad. Ntebi, Oct. 2, 1895.

No. 939. ♀ ad. Kakelelwa Forest, Kavirondo, 4500 feet, April 3, 1898.

No. 1202. ♂ ad. Nandi, 6500 feet, June 11, 1898. Iris brown; eyelids black; bill and feet black. A rare bird in Nandi. First one seen June 28th. Several seen since. When it spreads out its tail, it drops its wings. Very restless and always on the move. Takes insects on the wing as well as from the underside of leaves and other places.

248. PARISOMA JACKSONI.

Parisoma lugens (nec Rüpp.); Sharpe, Ibis, 1892, p. 302.

Parisoma jacksoni Sharpe, Bull. B. O. C. x. p. xxviii (1899); Ogilvie Grant, Ibis, 1900, p. 154.

No. 470. ♀ ad. Ravine, Feb. 19, 1897. Iris brown; bill black; feet horn-blue.

No. 492. Ad. Ravine, Feb. 28, 1897.

Appears to be fairly plentiful in the table-topped and other acacia trees, where it diligently searches for food. In general habits it resembles *Camaroptera brevicaudata*. Stomachs contained seeds and small berries.

No. 493. ♂ ad. Ravine, Feb. 28, 1897. Iris crimson-brown.

No. 545. ♂ ad. Ravine, March 20, 1897.

No. 620. ♀ ad. „ April 10, 1897.

No. 1212. ♀ ad. Nandi, 6500 feet, June 14, 1898. Iris dark crimson; bill black; feet greenish horn-blue. First seen, in tall tree in thick bush.

[Mr. Grant first pointed out to me that *P. lugens* of Abyssinia was different from the bird I have now called *P. jacksoni*.—R. B. S.]

249. PARISOMA ORIENTALE.

Parisoma orientale Reichen. & Neum.; O. Neum. J. f. O. 1900, p. 301.

Parisoma plumbeum, subsp. a, *P. orientalis* Shelley, B. Africa, ii. p. 218 (1900).

Nos. 24, 30. ♂ ad. Kibwezi, 3000 feet, March 3, 5, 1892.

Nos. 48, ♀; 49, ♂ ad. „ „ March 11, 1892.

[*P. orientale* seems to me to be distinct from *P. plumbeum*, being so much whiter below.—R. B. S.]

250. TARSIGER ORIENTALIS.

Tarsiger orientalis Fischer & Reichen.; Reichen. Vög. deutsch. Ost-Afr. p. 226 (1894); Shelley, B. Africa, i. p. 86 (1896); O. Neum. J. f. O. 1900, p. 309; Sharpe, P. Z. S. 1900, p. 608.

No. 121. ♂ ad. Mau, 8000 feet, June 26, 1896. Iris brown; bill black; feet horn-blue.

Nos. 176, 177. ♀ ♂ ad. Mau, 8500 feet, July 12, 1896.

No. 190. ♀ ad. Ravine, July 22, 1896.

No. 630. ♂ juv. „ April 15, 1897. Iris brown; bill dark slate-colour, lower mandible yellow; feet pale greenish horn.

No. 664. ♂ juv. Ravine, July 17, 1897.

251. CASSINIA KAVIRONDENSIS.

Bradyornis semipartitus (Rüpp.); Reichen. Vög. deutsch. Ost-Afr. p. 151 (1894).

Bradyornis kavirondensis O. Neum. J. f. O. 1900, p. 257.

Nos. 290, 291. ♂ ♀ ad. Elgeyu, 3700 feet, May 18, 1896. Iris brown; bill and feet black. Plentiful.

Fam. HIRUNDINIDÆ.

252. PSALIDOPROCNE ORIENTALIS.

Psalidoprocne orientalis Reichenow, Vög. deutsch. Ost-Afr. p. 147 (1894: Ussambára); Shelley, B. Africa, i. p. 103 (1896).

Nos. 178, 179. ♂ ♀ ad. Mau, 8500 feet, July 12, 1896. Iris brown; bill black; feet brown.

Nos. 536, 538. ♂ ♀ ad. Ravine, March 17, 18, 1897.

At present there are a few of these little Swallows about, together with examples of *Hirundo senegalensis*.

No. 867. ♂ ad. Nandi, 6500 feet, Feb. 14, 1898. Suahili name "*Kigumba mshari*."

253. CLIVICOLA MINOR.

Clivicola minor (Cab.); Reichen. J. f. O. 1892, p. 32 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 145 (1894); Shelley, B. Africa, i. p. 100 (1896).

Nos. 881, 882. ♀ ♂ ad. Mau Downs, 8000 feet, Feb. 21, 1898. Iris brown; bill black; feet brown. Found several skimming backwards and forwards on the lee-side of clumps of forest.

254. CLIVICOLA CINCTA.

Clivicola cincta (Bodd.); Reichen. J. f. O. 1892, p. 31; id. Vög. deutsch. Ost-Afr. p. 144 (1892).

Cotile cincta Shelley, B. Africa, i. p. 100 (1896).

a. ♂ ad. Ntebi, May 26, 1895.

255. BIBLIS RUFIGULA.

Clivicola rufigula (Fischer & Reichen.); Reichen. J. f. O. 1892, p. 31; id. Vög. deutsch. Ost-Afr. p. 145 (1894).

Biblis rufigula Sharpe & Wyatt, Monogr. Hirund. i. p. 97 (1894).

Ptyonoprogne rufigula Shelley, B. Africa, i. p. 101 (1896).

Cotyle rufigula Ogilvie Grant, Ibis, 1900, p. 175.

No. 342. ♂ imm. Kamassia, 6500 feet, Aug. 24, 1896. Iris brown; bill black; feet brown. Fairly plentiful; also met with in Elgeyu.

256. HIRUNDO ARCTICINCTA.

Hirundo arcticincta Sharpe; Shelley, B. Africa, i. p. 103 (1896).

Hirundo angolensis (nec Bocage) Reichen. J. f. O. 1892, p. 31; id. Vög. deutsch. Ost-Afr. p. 146 (1894) (Bussissi, Bukoba).

a, b. ♂ ad. Ntebi, Feb. 20, 1895.

257. HIRUNDO PUELLA.

Hirundo puella T. & S.; Reichen. J. f. O. 1892, p. 31 (Bukoba); id. Vög. deutsch. Ost-Afr. p. 146, fig. 67 (1894); Shelley, B. Africa, i. p. 102 (1896); Hartert, Ansorge's African Sun, p. 337 (1899) (Mombasa); Ogilvie Grant, Ibis, 1900, p. 177; O. Neum. J. f. O. 1900, p. 226.

a. ♂ ad. Ntebi, May 11, 1895.

No. 940. ♂ ad. Kakelelwa Forest, April 3, 1898. Iris brown; bill and feet black. In large flocks. Sings very sweetly.

258. HIRUNDO EMINI.

Hirundo emini Reichen. J. f. O. 1892, p. 30 (Bussissi, Bukoba); id. Vög. deutsch. Ost-Afr. p. 146 (1894); Shelley, B. Africa, i. p. 103 (1896); O. Neum. J. f. O. 1900, p. 225.

No. 395. ♂ ad. E. Kamassia, Sept. 29, 1896. Iris brown; bill black; feet olive-black.

259. HIRUNDO SENEGALENSIS.

Hirundo senegalensis L.; Shelley, B. Africa, i. p. 103 (1896); Jackson, Ibis, 1898, p. 139 (Witu); Hartert, Ansorge's African Sun, p. 337 (1899) (Masindi, Unyoro); Ogilvie Grant, Ibis, 1900, p. 177.

No. 394. ♂ ad. E. Kamassia, Sept. 29, 1896. Iris brown; bill black; feet olive-black.

Nos. 534, 535. ♀ ♂ ad. Ravine, March 16, 17, 1897.

No. 610. ♂ ad. Ravine, April 6, 1897.

No. 1057. ♀ ad. Nandi, 6500 feet, May 4, 1898.

No. 1071. ♂ ad. „ „ May 5, 1898.

This Swallow did not make its appearance until about a fortnight ago, and shortly after *H. rustica*, which was then plentiful, left the country. It was then the only Swallow seen.

It is not such an energetic bird as others of the family, and does not remain on the wing for so long a time, preferring to rest for considerable periods on dead trees, of which it nearly always selects the largest. These Swallows sit in small parties of five to eight on a tree singing away gaily, whilst others preen themselves. Every now and again they all leave together, take a short flight, and again return one by one.

VIII.—*On the Anatomy of the Kingfishers, with Special Reference to the Conditions in the Wing known as Eutaxy and Diastataxy.* By P. Chalmers Mitchell, F.Z.S., F.L.S.

(Plates IV. & V.)

Since the classical observations of Wray (1) were published, it has been known that in many birds a gap occurs in the series of cubital quills after the fourth large quill, while in other birds no such gap is found. The term *aquintocubital* was applied to the former condition, and *quintocubital* to the latter, as it seemed that in the one the fifth cubital quill, counting upwards from the wrist, was missing, while in the other it was present. In 1899 Mr. Pycraft and I made simultaneous communications (7 and 8) to the Linnean Society, in which we brought forward reasons against the supposition that the aquintocubital condition was due to the loss of a quill, and we adopted my name *diastataxy* to indicate the condition in which there was a diastema or gap in the series, *eutaxy* for the condition devoid of a gap. In the communication referred to, I showed that among the Columbidæ both eutaxy and diastataxy occurred, and gave a series of anatomical facts which seemed to bear the interpretation that those birds presenting the eutaxic condition were more modified than those with the gap in the quill series. It has been known for some time that the two conditions were both present among the Kingfishers. I have had the opportunity in the Prosectorium of the Zoological Society of examining a number of Kingfishers; my thanks for materials are due to the Society, to the Prosector, Mr. Beddard, and to Mr. C. Hose of Borneo. I hope to show that in the Alcedinidæ, as in the Columbidæ, those forms which have the eutaxic arrangement of the wing are in other respects more modified. The species which I have had an opportunity of examining are:—

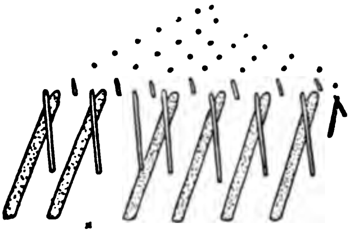
Dacelo gigantea.
Sauropatis chloris.
—— sancta.
—— sordida.
—— vagans.
Ceryle maxima.
—— alcyon.
Halcyon pileata.
—— rufa (coromanda *Sharpe*) (Callalcyon rufa).
Ceryle americana.
—— inda.
Cittura cyanotis.
—— sanghirensis.
Alcedo asiatica.
—— bengalensis.
—— ispida.
Ceyx rufidorsa.

The identification of some of these was simple; in other cases I am indebted to the kind assistance of Dr. Bowdler Sharpe; the species of *Cittura* were identified at the Zoological Gardens by Mr. Forbes, Mr. Beddard's well-known predecessor. There is difference of opinion as to the allocation of the generic names *Sauropatis* and *Halcyon*; I agree with Beddard (4) that, so far as we have examined the species, there are anatomical reasons for separating the genera, and I follow him in using the name *Halcyon* for the red-billed species. This, however, affects the nomenclature and not the conclusions, as the species were readily distinguishable.

EUTAXY and DIASTATAXY.

It is easy to make out that in most Kingfishers the wing-feathers are arranged in rows more or less diagonally placed; the large quill is at the base of the row and there follow above it the major covert and the coverts of the third and fourth series. Owing to the great size of the quills and relative size of the major coverts the rows are dislocated at the end towards the ulna; they are shorter at the wrist, and increase in length as the surface of the wing widens out towards the elbow. In *Dacelo gigantea* (fig. 4) there is a small carpal remex and covert, represented to the right, and attached by a small fold of membrane to the first large cubital quill in the fashion which I described in the Pigeons (7). Then follow four ordinary quills; then the diastema, and thereafter

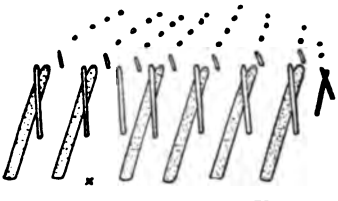
Fig. 4.



Dacelo gigantea, diagram of cubital feathering, the wrist being to the right, the elbow to the left. The quills are large, and dotted in the figure; the major coverts cross them; the feathers of the diagonal rows are represented as small circles. To the right is the small carpal remex and carpal covert. × diastataxic gap.

quills in even series. Each quill is at the base of a diagonal row, the major covert forming the feather in the row nearest the quill. In the diastataxic group there is a similar row, rather shorter, however, than the other rows. The four species of *Sauropatis* (fig. 5) present a condition essentially

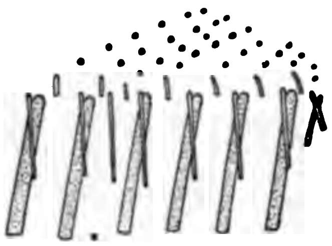
Fig. 5.



Sauropatis, diagram of cubital feathering. Explanation as in figure 4.

similar. The diagonal row in the diastataxic gap is relatively rather longer. In *Ceryle maxima* (fig. 6, p. 100) and *Ceryle alcyon* there is a carpal covert and carpal remex as before. There is a gap in the usual diastataxic position, and this, although relatively smaller than in *Dacelo* and *Sauropatis*, is occupied by a diagonal row. The seven species of Kingfishers mentioned in the first column of the list given above are diastataxic; in five of them the gap is almost as wide as the space for a complete row with a quill; in two, the gap is narrower, but in all it is occupied by a fairly complete row of feathers.

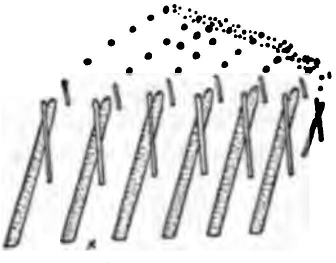
Fig. 6.



Ceryle maxima, diagram of cubital feathering. Explanation as in figure 4. The diastataxic gap (×) is small, but is occupied by a diagonal row, complete save for a quill.

Halcyon pileata (fig. 7) must certainly be described as eutaxic. The carpal covert and carpal remex are normal, the latter bound down by the usual plica. Then follow the secondary quills in even series, each at the base of a diagonal row. But in the position of the diastataxic gap, although there is no gap, and no trace of the so-called major covert that occupies the base of the row in diastataxic birds, there

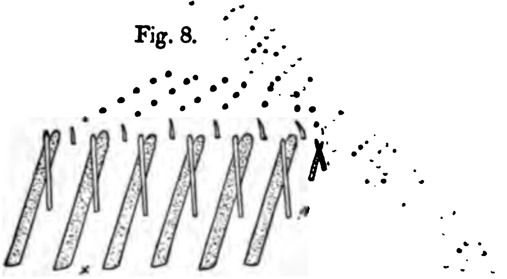
Fig. 7.



Halcyon pileata, diagram of cubital feathering. Explanation as in figure 4. Eutaxic arrangement, but position of diastataxic gap (×) marked by vestige of a diagonal row, consisting of three feathers.

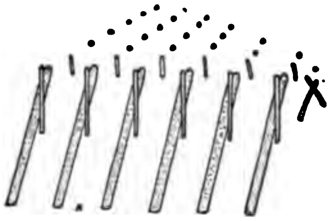
is a trace of the diastataxic row in the form of three feathers occupying the upper part of what probably has been a row. I may mention here that in one of the eutaxic Cuckoos (*Carpococcyx radiatus*) I have found a similar vestige of what I regard as the old diastataxic condition. *Halcyon rufa* (fig. 8) is also eutaxic, but in it there is no vestige of the other condition. The carpal remex is extremely small, smaller relatively than it is represented in the diagram, and it is not bound to the adjacent cubital by the usual plica. The covert is normal, and then follow the cubitals with their diagonal rows in even series. Although *Ceryle maxima* and *C. alcyon* are diastataxic, *C. americana* and *C. inda* (fig. 9) are eutaxic. In these, which are practically identical in this respect, the carpal remex is tied to the first quill by the usual plica; the covert is small. The quills follow in even

Fig. 8.



Halcyon rufa, diagram of cubital feathering. Complete eutaxic arrangement, there being no gap nor remnant of a row in the diastataxic position.

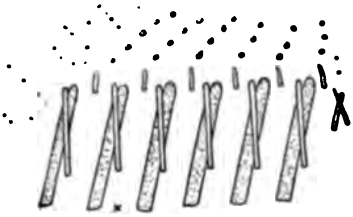
Fig. 9.



Ceryle inda and *C. americana*, diagram of cubital feathering. Explanation as in figure 8. Eutaxic arrangement.

series each with its diagonal row. *Cittura cyanotis* (fig. 10) and *C. sanghirensis* are also eutaxic in the strictest sense. In these, there is a small carpal remex not bound down by a plica, and a very small carpal covert. Then follow thirteen quills in even series, each supporting a diagonal row.

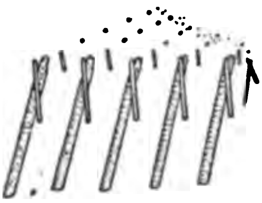
Fig. 10.



Cittura cyanotis, diagram of cubital feathering. Explanation as in figure 8. Eutaxic arrangement.

Alcedo asiatica (fig. 11), *A. bengalensis*, and *A. ispida* are all strictly eutaxic; the carpal covert and carpal remex are absent in *A. ispida* and present in the others. In all of them the quills are in even series, and are at the base of diagonal rows. The wing of *Ceyx rufidorsa* is similar to that of *A. asiatica*.

Fig. 11.



Alcedo asiatica, diagram of cubital feathering. Explanation as in figure 8. Eutaxic arrangement.

The seventeen Kingfishers which I have examined thus show plainly that here, as in the Columbidæ, the conditions known as eutaxy and diastataxy cannot be regarded as fundamental characters in any of the greater schemes of classification. Both conditions occur, scattered as it were indiscriminately within the confines of the group, and sometimes even within the confines of a genus. Nor are the two conditions absolutely marked off one from another, but lend themselves to an arrangement in a graded series, which suggests the production of one condition as a simple modification of the other. At one end of such a series stand *Dacelo* and *Sauropatis*, diastataxic in the strictest sense, there being a wide gap in the quill series, and this gap, with the exception of the quill, being occupied by a complete diagonal row. Next come *Ceryle maxima* and *C. alcyon*, still diastataxic but with the width of the gap much reduced. Then comes *Halcyon pileata*, eutaxic, without a gap, but with a possible remnant of the other condition in the form of a reduced diagonal row of three small feathers. Then come the other eutaxic forms with no gap and no trace of the diastataxic diagonal row. In my paper on the wings of the Columbidæ I advanced an hypothesis that the diastataxic condition was primitive, and suggested a mode in which it might have arisen. Without for the present recurring to that suggested origin, I am content to point out that were the wings of all birds originally diastataxic it is not difficult to see that by closing of the gap, and consequent gradual obliteration of the row that occupied the gap, the eutaxic condition might have been produced. Moreover, if the production of eutaxy be part of a general process of the formation of a simpler but more specialized organ of flight from an older and more diffusely arranged organ, there is no theoretical difficulty in supposing it to have been produced separately and independently in many different kinds of birds. On the other hand, if so remarkable an arrangement as the absence of a single quill, in a definite and identical position, has been produced from a primitive eutaxy, we have either to make the supposition that all the diastataxic forms are more closely related to each other than to the eutaxic forms—a suggestion that strikes rudely across all natural classifications—or to face the almost impossible idea of its polyphyletic origin. I will now proceed to review the anatomical facts which serve to show that the eutaxic Kingfishers are in other respects the more specialized birds.

There is not much information to be derived from the geographical distribution and external characters of the seventeen forms under notice. Austro-Malaya is the metropolis of the Kingfishers, and contains both eutaxic and diastataxic forms. Such presumably far-travelled forms as the American *H. rufa* and *C. americana* are eutaxic, as is also the European *Alcedo.* The presence of a tuft on the oil-gland is almost certainly the more primitive condition among Kingfishers. The *Citturæ*, in which the gland is naked, are eutaxic. Forbes mentions that the gland is also naked in *Tanysiptera*; it would be interesting to find if that genus also is eutaxic. The characteristic arrangement of the ventral pterylæ in the Kingfishers is that the ventral tract, as in *Alcedo,* divides at the base of the neck into two lateral tracts, each of which almost immediately divides again. This arrangement is well marked in all the eutaxic forms, in *Dacelo*, and in *Ceryle maxima.* In one of the eutaxic forms, *Ceryle americana*, the median divisions of the lateral tracts coalesce soon after their separation from the lateral divisions, and then separate again. A similar condition is seen in the diastataxic *C. alcyon.* But in the species of *Sauropatis*, although least so in *S. sancta*, there is a broad, diffuse, pectoral tract, hardly distinguishable into lateral tracts. I do not quite agree with Beddard, who called attention to this, that it can be regarded as a generic character of *Sauropatis*, as it is not so apparent in *Sauropatis sancta*; but it is interesting to notice that the forms in which this absence of differentiation occurs are diastataxic. The wings of the eutaxic forms have on the whole a smaller number of secondary quills, and these individually are larger; the carpal covert and carpal remex tend to be smaller, and are absent in one of the *Alcedines.* The eutaxic *Ceyx* has the second toe absent, certainly not a primitive character.

MUSCULAR ANATOMY.

Biventer Link.—The only noteworthy peculiarity that I have found in the muscles of the head and neck relates to a tendinous link first noted by Dr. R. O. Cunningham (3) as uniting the *biventres cervicis muscles* in *Ceryle stellata*, but absent in *Alcedo.* Beddard (4) examined a number of

Kingfishers with reference to this point, and I paid minute attention to it as a character known to differ among Kingfishers. It is probable that its presence is a Kingfisher character; so far as I know, it is not found in other birds, and it seems too definite to have been acquired independently in a number of cases. Its absence seems best explained as a secondary loss. Beddard noticed that it was present in one of two specimens of *Sauropatis vagans*; I found it absent in one *S. vagans* and in *S. chloris*, but an apparently degenerate slip represented it in *S. sancta* and *S. sordida*. It is absent in *Alcedo ispida*, but a diagonal slip represents it in *Alcedo asiatica* and *A. bengalensis*. Assuming, then, that the loss is secondary, it appears that the eutaxic forms *Ceyx*, *Halcyon rufa*, and *H. pileata* have lost it; one of the *Alcedines* has lost it, and in the others it is degenerate. In *Sauropatis* it is present, absent, or degenerate; in *Dacelo* it is absent, in the other forms, eutaxic or diastataxic, it is present. Here, as in many other characters, there is not a definite coincidence between eutaxy and progressive change, but the more general fact holds good that, where there is a tendency within the group for independent movement in any direction, the eutaxic forms show a high relative average of instances of such change.

Latissimus dorsi, anterior et *posterior*.—The phylogeny of these muscles outside the Avian group is an extremely difficult problem, but I am on clear ground in stating that the most common and generalized condition among birds is the existence of an anterior and posterior division, the two being fairly equal in width and strength, well separated at their origins, and in contact at their insertions. Such a condition is well marked in all the diastataxic forms, although there is a tendency, displayed in *Dacelo* and in *Sauropatis*, for the anterior division to be weaker than the posterior. I follow Fürbringer in regarding any well-marked divergence from the condition described as secondary. Among the Columbidæ I found the divergent tendency to be in the direction of reduction of the posterior division, and this was well-marked among the eutaxic forms. In the Kingfishers it is the anterior division that tends to be reduced; and this reduction, incipient in some of the diastataxic forms, becomes striking in eutaxic forms. Thus in the eutaxic *Ceryle americana* and *C. inda*, as compared with the diastataxic *C. maxima* and *C. alcyon*, the anterior division is very thin and weak; the posterior is enormous, broad, and strong, and with a considerable forward extension of its origin. In *Halcyon* a similar condition exists, less marked in *H. rufa*, plain in *H. pileata*. In *Cittura* it is plain; in *Alcedo ispida* the anterior division appears only as a few fibres; in *A. bengalensis*, *A. asiatica*, and in *Ceyx* the anterior division is absent, while the posterior has become very strong.

Latissimus dorsi metapatagialis.—This slip was equally developed in all.

Rhomboideus superficialis and *R. profundus*.—In the Kingfishers the superficial muscle extends further forwards, the deep muscle further postaxially, the two partially overlapping in the middle. These characteristics are accentuated in all the eutaxic forms. The deep muscle tends to be thicker at its anterior and posterior margins. This progress towards secondary cleavage is well advanced in *Sauropatis vagans*, alone in this respect among the diastataxic forms, while in the eutaxic *H. rufa*, the *Citturæ*, *Ceryle americana*, *Ceyx*, and the *Alcedines* it is obvious.

Supracoracoideus.—Markedly bipinnate in all and without notable variations.

Coraco-brachialis externus is in all a small fleshy muscle.

Coraco-brachialis internus is in all a small muscle arising from the postero-lateral part of the coracoid, with a slight overlap on to the sternum, and is inserted to the dorsal surface of the median tubercle of the humerus.

Biceps presents no marked differences, and the *biceps patagialis* is absent in all, as in the Passerines and other birds called *anomalogonatous* by Garrod.

ALAR MUSCLES.—The wing is the most distinctive part of the Avian body, and the modifications in it deserve special attention when the relative specialization of different birds is being considered. The group of alar muscles and tendons present an interesting series of modifications in Kingfishers, and in these the scale of specialization dips markedly towards the eutaxic forms.

Deltoides major.—There can be no doubt but that among birds generally this muscle tends to increase in length, its insertion extending gradually down the humerus. In *Dacelo* it has reached halfway down the humerus, and in the other diastataxic forms it has a nearly similar extension, sometimes falling short and sometimes just surpassing that length. In all the eutaxic forms it reaches down beyond the first half, although this downward extension always falls short of that attained in most Pigeons.

Deltoides minor.—This is in two portions, separated by the tendon of the *supracoracoideus*, and does not show any striking divergences in the different forms.

Deltoides propatagialis.—Many writers have made contributions to our knowledge of this distinctively Avian muscle, and Fürbringer in particular has classified the series of modifications which it presents. At one end of the series is the condition in which the muscle has a single belly, giving off at the distal end the *longus* and *brevis* tendons. This condition, obviously more primitive, occurs in most Avian families, and in all but a few exceptional cases among swimming and wading birds. In the next stage the distal extremity gives rise to two muscular peaks, one for the *brevis* and another, usually smaller, for the *longus* tendon. This condition occurs in a small number of genera scattered irregularly through the families. In further stages the peaks deepen, the division extending towards the origin of the muscle, such stages being of rarer occurrence. The culmination of the series has been attained in Passeres and in a few genera of other birds, in which the original muscle has been divided into a specialized and separate muscle for each tendon. In all the diastataxic Kingfishers the peaked stage has been reached. In *Dacelo* (Plate IV. fig. 1), in *Ceryle maxima* (Plate IV. fig. 2) and *C. alcyon* (Plate IV. fig. 3), and in all the species of *Sauropatis* (Plate IV. fig. 4) the *longus* peak is smaller than that for the *brevis*. Among the eutaxic forms *C. americana* (Plate IV. fig. 5) alone has remained behindhand in the specialization of this muscle. In *C. inda* (Plate V. fig. 6), *H. pileata* (Plate V. fig. 8), *H. rufa* (Plate V. fig. 9), *Alcedo asiatica* (Plate V. fig. 10), *A. ispida, A. bengalensis*, and *Ceyx rufidorsa* the division is practically complete, so that the Passerine condition of two muscles has been reached. In *Cittura cyanotis* (Plate V. fig. 7) the same stage has been reached with the further specialization of the *brevis* division of the muscle into two minor peaks.

Pectoralis propatagialis.—The most common and widespread condition of the pectoral contribution to the alar muscles is the occurrence of a slip, muscular and tendinous, from the pectoral muscle to the *longus* and *brevis* tendons. This condition occurs in all the diastataxic forms (Plates IV. & V., various figures, *p.l.* and *p.b.*): in some of the eutaxic forms the *longus* division becomes more specialized; the *brevis* tends to disappear, in *Alcedo, Ceryle inda*, and *Ceyx rufidorsa* it has completely disappeared.

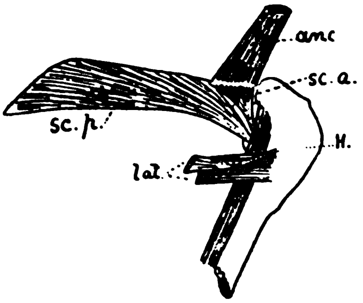
ALAR TENDONS.—The *deltoides propatagialis* and *pectorales propatagialis* are attached to a set of tendons of which the structure and modifications in birds generally have been attended to by Garrod, Gadow (9), Beddard, Fürbringer, and a host of other anatomists, Fürbringer in particular having made a great stride towards classification and coordination of the materials. In the *longus* tendon among Kingfishers I have not found differences of moment, but the *brevis* tendon offers conditions of great interest. I will begin by setting out the anatomical data. In *Ceryle maxima* (Plate IV. fig. 2) there is a broad diffuse band of fasciæ stretching from the *deltoides* to the extensor muscles, and receiving the *pectoralis* tendon. The edges of this are thickened, and a stronger slip, the "*α*" of Fürbringer, is attached to the *extensor metacarpi radialis*, distad of the main fasciæ. In *Ceryle alcyon* (Plate IV. fig. 3; and Beddard (4), fig. 2) there is a similar broad band of fasciæ, but in it three thicker strands exist. The first is in continuity with the peak of the patagial muscle most near the humerus, and at its distal end bends towards the elbow; it is the "*γ*" of

Fürbringer. The second is on the distal edge, arising chiefly from the *deltoides*, but partly from the *pectoralis*; it is the "α" of Fürbringer, and, as in *C. maxima*, is inserted to the *extensor metacarpi*, distad of the main tendinous mass. The third, the "β" of Fürbringer, is median, and arises chiefly in the line of the *pectoralis* contributor to the system. In *Sauropatis chloris* (Plate IV. fig. 4) and the other species I dissected (*S. albicilla* as shown by Beddard (4), fig. 3, very closely resembles the others) the fasciæ are much reduced, while the thickenings assume independent identity as tendons. The tendon on the humeral side obviously is homologous with the corresponding thickening in *Ceryle alcyon*, and is the "γ" of Fürbringer. The pectoralis contribution and the distal thickening unite, and then diverge distally into two branches—one, the "β" of Fürbringer, bending towards the humeral edge, joining with the tendon of insertion of "γ," and forming a fan-shaped extension over towards the ulnar edge of the forearm; the other turning wristwards is the "α" of Fürbringer. In *Dacelo* (Plate IV. fig. 1) there is a still smaller extent of undifferentiated fasciæ, and the appearance is that of two parallel tendons joined by a sloping band: the figure makes the homologies of these obvious; the parallel tendons are α and γ, with β running down from α to γ. In *Cittura* both species are alike in this matter (Plate V. fig. 7); the tendons are distinct and are not united by fasciæ, their condition obviously being a simple modification of that found in *Sauropatis*—α, β, γ being distinct distally, but β and α joining more proximally after origin from the *pectoralis* and distal peak of the *deltoides patagialis*. In *Halcyon rufa* (Plate V. fig. 9) α, β, and γ are distinguishable distally; in Beddard's figure (4, fig. 1) α is more separated from the common mass distally, and is therefore more like the condition in *H. pileata* (Plate V. fig. 8); but higher up all three blend into a single round tendon. In *Ceryle americana* (Plate IV. fig. 5) and in *Alcedo* (Plate V. fig. 10) α, β, and γ are distinct at their insertions, but, proximally, arise from a single well-rounded tendon. In *Ceryle inda* (Plate V. fig. 6)—and *Ceyx rufidorsa* closely resembles this—the concentration is carried slightly further, β and γ alone being distinct at their insertions, while above there is a single round tendon.

The forms showing these conditions may obviously be placed in a series—the diastataxic forms led by *Ceryle maxima* being at one end, the eutaxic forms culminating in *Ceyx* and *Ceryle inda* being at the other. Beddard (4) has rightly remarked that the *Alcedo* type was anatomically the simplest of those with which he dealt, and obviously the *C. inda* type is still simpler. But it is no necessary conclusion that in an anatomical series the simpler structure is the more primitive. In the case of the alar tendons, Fürbringer has shown that the *brevis* tendons are to be regarded not as extensions of their muscles, but as differentiations of the originally diffuse alar fasciæ into which these muscles were inserted, the muscles themselves being originally cutaneous slips. From this point of view it is plain that the diffuse undifferentiated condition of *C. maxima* is the most primitive of the series; *C. alcyon* shows a differentiation of this diffuse structure by the appearance of thickenings, presumably along the lines of strain; *Sauropatis, Halcyon,* and *Cittura* show, so to speak, a cutting away of the unnecessary diffuse fasciæ between the thickenings, with the result that the latter appear as independent tendons. In the other eutaxic forms these tendons become simplified by concrescence until the Passerine single-tendon condition is reached; but the distal ends may still retain traces of the differentiation into *a*, β, and γ. Thus it would appear that in this case, as in the case of the splitting of the *deltoides patagialis*, the eutaxic forms display the higher stages of progressive specialization. Curiously enough, in this case, as in that of some structures among Pigeons, the degree of differentiation reached by eutaxic forms shows interesting resemblances to well-known features of the Passerine structure.

Scapulo-humerales anterior et *posterior*.—The condition of these muscles in the Kingfishers is that found in most groups of birds. As in *Dacelo* (fig. 12), both muscles are present; they meet at their origin from the scapula, but remain quite distinct to their insertions. The posterior muscle is very much larger than the anterior. As exceptions, I found in the eutaxic *Alcedines* and in *Cittura sanghirensis* that the anterior muscle was relatively smaller.

Fig. 12.



Humeral muscles of *Dacelo gigantea*.

H., humerus; *anc.*, anconæus scapularis, cut short; *sc.a.*, scapuli-humeralis anterior; *sc.p.*, scapuli-humeralis posterior; *lat.*, latissimus dorsi, anterior et posterior.

Subcoraco-scapularis.—In all the Kingfishers the *subscapularis* portion of this compound muscle is in two divisions, separated by the insertion of the *serratus* slip. In *Dacelo* the *externus* is much larger than the *internus*, and its insertion reaches nearly opposite the point where the scapula bends downwards. The origin of the *internus* just reaches the clavicle. In *Ceryle maxima* the clavicular origin is more marked, and the same condition is present in the other forms. The coracoid division of the muscle is large and normal in all the *Cerylæ*, in the species of *Sauropatis*, in the *Alcedines*, in *Ceyx*, and in *Halcyon rufa*, extending down to the *sterno-coracoid*; but in *Halcyon pileata* and in *Dacelo* it is reduced to a slender ligament. These may be individual variations, but they are interesting as suggesting a tendency to change in this generally constant muscle.

Anconæus and *Expansor secundariorum.*—The scapular and humeral portions of the muscle are well developed, and practically identical in all the Kingfishers, but that specialized portion of the muscle called the *expansor secundariorum* by

Garrod offers important differences. It is present but feeble in *Dacelo*, *Ceryle maxima* and *C. alcyon*, and in the species of *Sauropatis*—that is to say, in all the diastataxic forms. It is also present in *Halcyon rufa*, a eutaxic form, but is absent in *H. pileata*, *Ceryle inda* and *C. americana*, the two species of *Cittura*, the *Alcedines*, and *Ceyx rufidorsa*—that is to say, in all but one of the eutaxic forms, an obviously secondary condition.

Musculature of Forearm and Hand.—In this series of muscles the only case of striking difference occurs in the *extensor indicis longus*. In *Dacelo* this arises from the middle half of the radius on its ulnar face, and is inserted to the phalanges of the second digit. The short head from the distal end of the radius, present in some birds, is absent. In all the diastataxic forms the muscle is like that in *Dacelo*; in all the eutaxic forms its origin has a longer extension, occupying about the middle two-thirds of the radius, and otherwise is relatively stronger.

Musculature of the Thigh and Leg.—Kingfishers are birds in which flight is the most important mode of progression, and in which the hind limbs play a relatively smaller part in the activities of life. Probably, in relation to this, the wings and shoulder-girdle tend to increase in relative size and strength, while the pelvis and legs tend to diminish in size. This double tendency is plain in all, but reaches a maximum in eutaxic forms, such as the species of *Alcedo* and *Ceyx*. The changes are plain both in the skeleton and in the soft parts.

Ilio-tibialis externus seu *sartorius*.—In *Dacelo* the origin is tendinous from the supra-iliac crest, with a forward extension to the second last dorsal vertebra. From this the muscle runs with a narrow belly to the tendinous insertion in the knee-capsule. The relations are similar in *Ceryle maxima*; in *C. alcyon* the belly is rather broader, while in the eutaxic *Cerylæ* the increase in breadth is enormous. The species of *Sauropatis* resemble *Dacelo* and the diastataxic *Ceryles*. In the *Halcyones*, *Citturæ*, and *Ceyx* the belly is also narrow, but in the *Alcedines* it is very broad. There is therefore evidence that in the Kingfishers this muscle tends to change from the more usual condition in birds, increasing in breadth and strength at the expense of the glutæus maximus. The contrast is most apparent when taken between the diastataxic and eutaxic *Ceryles*, but it also occurs between eutaxic *Alcedines* and the diastataxic forms.

Ilio-tibialis seu *glutæus maximus.*—The researches of Garrod would seem to imply that the generalized Avian condition of this muscle is broad and strong, its origin from the ilium or dorsal middle line extending behind and in front of the acetabulum. In *Dacelo* alone I have found a trace, in the form of fasciæ, of the postacetabular portion. In *Dacelo, Ceryle maxima, C. alcyon,* and the species of *Sauropatis*—that is to say, in all the diastataxic forms—the preacetabular portion of this muscle is well developed. Among the eutaxic forms *Cittura sanghirensis* alone has retained this condition; in *Cittura cyanotis, Halcyon rufa,* and *Ceyx rufidorsa* the muscular belly is very narrow and weak; in *Halcyon pileata, Ceryle americana* and *C. inda,* and in the *Alcedines* the reduction is carried so far that the muscle is represented by a band of fasciæ with only a few muscular fibres near the proximal end.

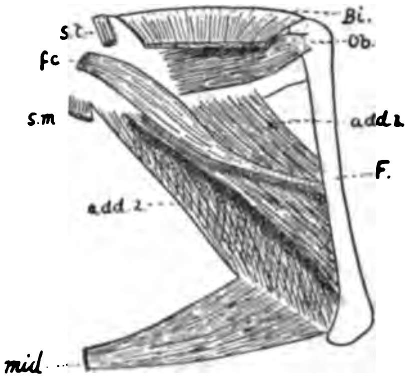
Ilio-trochanterici seu *glutæi.*—In *Dacelo* all three are distinct and separate: the *posterior* (*secundus*) is very large, and arises from all the preacetabular ilium; its insertion, partly fleshy, partly tendinous, is to the femur, proximad of the insertions of the others. The *anterior* (*tertius*) is the next in size and the most distal. The *medius* (*quartus*) is the smallest, and lies under the *posterior* and between it and the *anterior*. In all the other Kingfishers the condition of these muscles was similar except that in *Halcyon pileata* the *medius* was reduced to the merest vestige.

Ilio-femoralis externus (*glutæus anterior*) was absent in all.

Femori-tibiales (*cruræus* plus *vastus* and *vastus internus*).—The *internus* in all has the normal arrangement; the *vastus* and *cruræus* are also normal, but in the species of *Ceryle* there is also an insertion to the lower part of the femur, an arrangement not uncommon in birds.

Caud-ilio-femoralis.—The *pars iliaca* (*accessory femoro-caudal*) is absent in all. The *pars caudalis* is present in all, and is comparatively narrow in *Dacelo*, in *Ceryle maxima* (fig. 13, *f.c.*) and *C. alcyon*, *Sauropatis vagans*, and *Ceyx rufidorsa*; while in *Ceryle inda* (fig. 14, *f.c.*), *C. americana*, the *Citturæ*, *Alcedines*, and in *Sauropatis sordida*, *chloris*, and *sancta* there is no well-marked relation between the

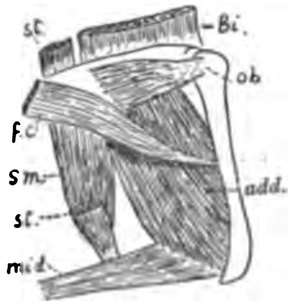
Fig. 13.



Femoral muscles of *Ceryle maxima*.

F., femur; *Bi.*, biceps cut short; *f.c.*, femoro-caudal; *s.t.*, semi-tendinosus, cut short; *s.m.*, semi-membranosus, cut short; *ob.*, obturator externus; *add.* 1, adductor externus; *add.* 2, adductor internus; *mid.*, middle head of the gastrocnemius.

Fig. 14.



Femoral muscles of *Ceryle inda*. Lettering as in figure 13.

conditions of the muscle and the eutaxy or diastataxy, but, so far as it goes, the width is more often greater in the *eutaxic* forms. The instances in the figures do not show the contrast in its most marked state.

Caud-ilio-flexorius.—The *accessory semi-tendinosus* is possibly represented by a few fibres in *Dacelo*; it is absent in the others. The *semi-tendinosus* in all is inserted to the tendon of the *semi-membranosus*; it is rather wider in those forms in which the *femoro-caudal* is wide (figs. 13, 14, *s.t.*).

Ischio-flexorius (*semi-membranosus*) in all is larger than the *semi-tendinosus*, and is inserted to the tibia by a flat tendon (figs. 13, 14, *s.m.*; fig. 15, *semi-m.*). It also varies in width with the width of the *femoro-caudal*, the increased width being specially marked in the eutaxic *Ceryles*.

Biceps in all is a strong muscle with a very wide origin and the usual sling.

Ischio-femoralis (*obturator externus*) differs slightly but irregularly in the extent of its origin from the pelvis, being rather shorter in some of the eutaxic forms (figs. 13 and 14, *ob.*). But in these cases another feature, the shortening of the pelvis, must be kept in view, and it is by no means certain that there is a definite relation between the changes of size of the bone and the muscle. There is some evidence that the pelvis is becoming shorter in the more specialized Kingfishers, and unless the muscle is shortened at precisely the same rate, a shortened pelvis would conceal a simultaneous shortening of the muscle. This raises the very large and important question of the independence of the "growth forces," which in some cases seem to be displayed by different parts of an organism, while in other cases alteration in parts seems to be accompanied by a recovery of the original symmetry. I do not think that there is at present enough material for the discussion of this subject.

Pub-ischio-femorales (*adductors*).—*Ceryle maxima* (fig. 13, *add.* 1, *add.* 2) and *C. inda* (fig. 14, *add.*) show two conditions. In *C. maxima* the *superior adductor* is much smaller and distinct, having no connection with the *gastrocnemius*, while the *internus* is fused along a diagonal seam with the middle head of the *gastrocnemius*. This condition is typical in Kingfishers and is common in birds. It occurs in *Dacelo*, *Ceryle maxima*, four species of *Sauropatis*, the *Halcyones*, *Citturæ*, *Ceyx*, *Alcedo asiatica*, and *A. bengalensis*. On the other hand, in *Ceryle alcyon*, a diastataxic form, in *C. americana*, *C. inda* (fig. 14, *add.*), and *Alcedo ispida*, while the *internus* is similar, the *externus* is either so small as to be practically indistinguishable (*Alcedo*) or has lost separate identity.

Popliteus consists in all of a few fibres nearly transversely arranged between the heads of the tibia and fibula.

Tibialis anticus in all has the usual fleshy head from the tibial crest and tendinous head from the external condyle of the femur. It passes under a fibrous transverse bridge, and is inserted by a single tendon.

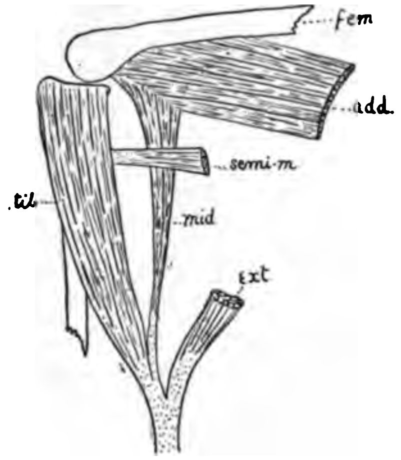
Extensor digitorum communis in *Dacelo* arises in the normal fashion under the *tibialis anticus*; it is inserted to the three digits by three distinct slips. In all the Kingfishers it is similar, except that in *Ceyx* the slip to the index is absent.

Peroneus superficialis.—This muscle is plainly degenerating, possibly in association with the degeneration of the fibula, and it is notable that it is quite absent in many of the Pico-Passerine group (*Beddard*). In *Dacelo* it arises from the external corner of the tibial crest as a narrow tendon, instead of the more normal broad origin by muscle or fasciæ. It is joined by a few fibres from the tibia along the region of the fibula, and is inserted to the knee-capsule without the usual slip to the flexor of the middle digit. The same conditions exist in all the diastataxic forms and in some of the eutaxic forms. But in other eutaxic forms, notably *Ceryle americana* and *C. inda*, in the *Halcyones*, and *Ceyx*, it is still more reduced, being simply a long round tendon with the merest vestige of muscular fibres in it.

Peroneus profundus.—This muscle is relatively better developed, arising from the area of the tibia usually covered by the lower end of the fibula. This is the general condition, and suggests an increased strength in compensation for the degeneration of the superficial muscle. The increase is notable in some of the eutaxic forms, e. g. *Ceryle americana* and *C. inda.*

Gastrocnemius.—In *Dacelo* (fig. 15, *tib., mid., ext.*) this muscle has the usual three heads, the middle head being the smallest and connected with the internal *adductor.* It is similar in the other Kingfishers, except that in *Halcyon rufa* all three divisions are reduced to tendon, perhaps an individual abnormality. I figure the muscle, as its arrangement in different Avian groups has considerable interest.

Fig. 15.



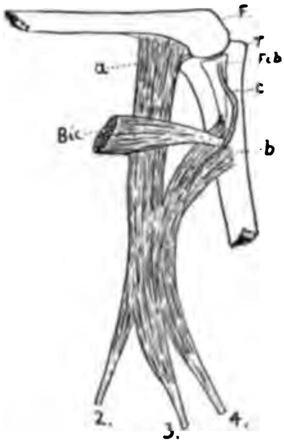
Leg-muscles of *Dacelo gigantea.*
fem., femur; *add.*, adductor; *semi-m.*, semi-membranosus; *ext.*, *mid.*, *tib.*, external, middle, and tibial heads of the gastrocnemius.

Plantaris.—This is small and normal in all.

Flexores perforantes et perforati of the second and third digits are similar in all, except that in *Ceyx* the muscle of the index is absent.

Flexores perforati of digits II., III., IV.—In *Dacelo* (fig. 16, p. 118) this muscle-complex arises by two heads, which join and give rise to the tendons for the digits. One head is fleshy and from between the condyles of the femur; the other also is fleshy and arises, rather unusually, from the fibula and tibia near the insertion of the biceps. The *ambiens* muscle is completely absent, and there is no trace of an *ambiens* contributory to this muscle-complex. But there is present, in a reduced condition, a tendinous slip (fig. 16, *c*) from the head of the fibula, a slip which in many birds unites with the *ambiens* ligament before that passes into the muscle-complex. I describe and figure this muscle because, although it is similar in all the Kingfishers (except in *Ceyx*, where the tendon to the index is absent), its varying conditions in different Avian groups still require examination. At present it seems to me probable that the head from the fibular region demands consideration in connection with certain rudiments which I described as *ambiens* rudiments (10), and that this, as well as the presence of the tendinous slip from the head of the fibula, tends to break down Garrod's sharp distinction between homalogonatous and anomalogonatous birds.

Fig. 16.



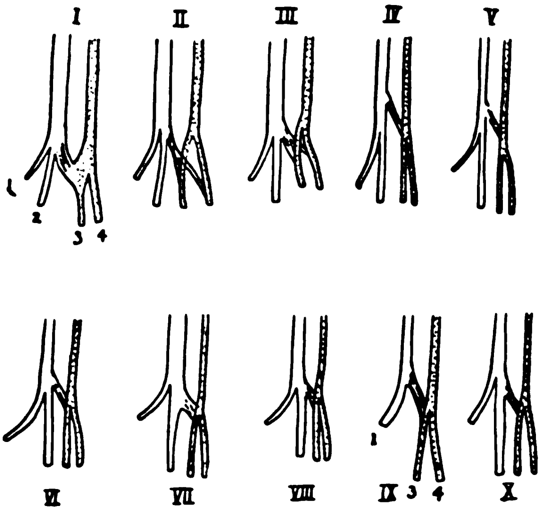
Leg-muscles of *Dacelo gigantea*.

F., femur; *T.*, tibia; *Fib.*, fibula; *Bic.*, cut edge of biceps; *a*, intercondylar head; *b*, tibial head of flexor perforatus; 2, 3, 4, tendons to digits II., III., IV.; *c*, ligament from head of fibula.

Flexor longus hallucis and *flexor profundus*.—The origin of these and their relation in the knee-capsule conform to the normal Avian type. The plantar tendons, however, show specific peculiarities which I have figured, as much stress has been laid on these structures. In fig. 17 the tendons are all represented as arranged in the same position; the *flexor hallucis* is to the right and is dotted, the deep flexor is to the left and is not dotted, but that portion of it which represents the vinculum is marked with longitudinal lines. The hallux is to the left. Sundevall made one of the earliest contributions to knowledge of the interesting divergences in these tendons which occur among birds; but his attention was devoted specially to the Passerine foot, while Garrod (2) laid the foundation of a more general knowledge. According to his account, and subsequent research has strengthened his position, the normal Avian condition is that the *flexor hallucis* tendon crosses the *communis* tendon to be inserted to the hallux, but on its way sends a strong vinculum to the *communis*. In certain birds, however, he showed that the *hallucis* and *communis* tendons fused, and that from their conjoined mass slips were given off to the digits, the hallux slip arising markedly on the side of the *communis* tendon, not on the side of the *hallucis* tendon. He supposed the condition in *Momotus, Merops,* and *Dacelo,* where the *communis* obviously supplied the hallux, and where the *hallucis* tendon instead of supplying the hallux supplied other digits, to be a simple derivative of the foregoing stage. In a Kingfisher chick, the species of which was undetermined, I found the condition which Garrod thought intermediate between the most common arrangement and that in *Merops* and *Dacelo.* The *hallucis* and *communis* tendons fused, and from the common mass the tendons to the four digits arose, that of the hallux arising on the *communis* side. I think that there is much more to be said as to the primitive and derived conditions in birds generally, but for the present I may point out that, as the figures show, the typical Kingfisher condition, that most strikingly different from those more common in other birds, is for the so-called *hallucis* to supply digits 3 and 4, and for the so-called *communis* to supply the hallux and digit 2. This is extremely well seen in the eutaxic forms (fig. 17, p. 120, IV. to X.);

only a narrow vinculum connects the two tendons. In *Dacelo* (fig. 17, I.) and *Sauropatis*, and especially in the diastataxic as contrasted with the eutaxic *Ceryles* (fig. 17, II. and III.), the *communis* retains a more strong hold on the third and fourth digits by means of a branching vinculum, so that in these Kingfishers the peculiarity is not so acutely marked.

Fig. 17.



Deep plantar tendons of Kingfishers.

I. *Dacelo gigantea.*
II. *Ceryle maxima.*
III. —— *alcyon.*
IV. —— *americana.*
V. —— *inda.*
VI. *Cittura.*
VII. *Halcyon pileata.*
VIII. —— *rufa.*
IX. *Ceyx rufidorsa.*
X. *Alcedo.*

In all the *communis* tendon (plain) is to the left, and the *hallucis* tendon (dotted) is to the right. The *vinculum* is striped. In all the tendon for the hallux is to the left (1), and the tendons for digits 2, 3, and 4 follow towards the right. (2) is missing in *Ceyx*.

Garrod made the interesting observation that when a vinculum is present it runs down from the *hallucis* to the *communis*, with the result that the hallux cannot be flexed without at the same time flexing the other digits by the pull on the vinculum, whereas digits 2, 3, and 4 could be flexed independently of the hallux by contraction of the *communis* muscle. In the Kingfishers, where the hallux is supplied by the *communis,* a similar functional result is brought about in another way. The hallux cannot be flexed independently of the other digits by the action of the *communis,* as the vinculum from that runs down to the *hallucis* tendon; but digits 3 and 4 may be flexed, independently of the action of the hallux, by the *hallucis* muscle.

In this communication I do not propose to enter into the osteological modifications displayed in these Kingfishers, but I may mention that they also provide valuable evidence as to the relative specializations of eutaxic and diastataxic forms. I may now sum up in a few words. When the anatomy of Kingfishers is examined, it is found that the differences present may, in a number of cases, be regarded as showing a greater or less degree of specialization. The group is to be regarded as marching in a definite direction, many of the organs tending towards definite changes which may be summed up as specialization. There is no *rigid* correlation between the degrees of specialization of different organs in the same species; in some species certain changes shoot out beyond others, but there is a general correlation, so that if any species be far advanced in one organ it is more likely to be far advanced in other organs, or to have a higher average of advance among all its organs, it being remembered that advance in such anatomical arguments means change from common, ancestral, or generalized type, whether such change be evolution or involution. The change from diastataxy to eutaxy is one of these advances or specializations, and in the Kingfishers, as in the Columbidæ, it is associated with a high average of advances in other organs. I am not here concerned with what may be called the motive force of specialization. It is plain that the mode of its occurrence offers a specious argument to those who would see in evolution evidence of a directive impulse, resident in organisms, and the active agent in their phylogenetic modification. But it will be more in accordance with scientific reserve if we interpret the kind of facts set out in this paper as evidence that the direction of variation is one of the characters that define organic groups. It is obvious that this character is not likely to be exempt from the phylogenetic strengthening, of which we have evidence in the case of other characters.

List of papers referred to.

(1) Wray.—"On some Points in the Morphology of the Wing of Birds." P. Z. S. 1887, p. 343.

(2) Garrod.—"On the Disposition of the Deep Plantar Tendons in different Birds." P. Z. S. 1875, p. 339.

(3) Cunningham, R. O.—"Notes on some Points in the Anatomy of three Kingfishers." P. Z. S. 1870, p. 280.

(4) Beddard.—"On some Points in the Anatomy of the Kingfishers." P. Z. S. 1896, p. 603.

(5) Fürbringer.—Untersuchungen zur Morphologie und Systematik der Vögel. 1888.

(6) Beddard.—The Structure and Classification of Birds. 1898.

(7) Chalmers Mitchell.—"Quintocubitalism in the Wing of Birds." J. Linn. Soc., Zool. vol. xxvii. p. 210.

(8) Pycraft.—"Aquintocubitalism in the Wing of Birds." J. Linn. Soc., Zool. vol. xxvii. p. 237.

(9) Gadow.—"Aves" in Bronn's Thier-Reich.

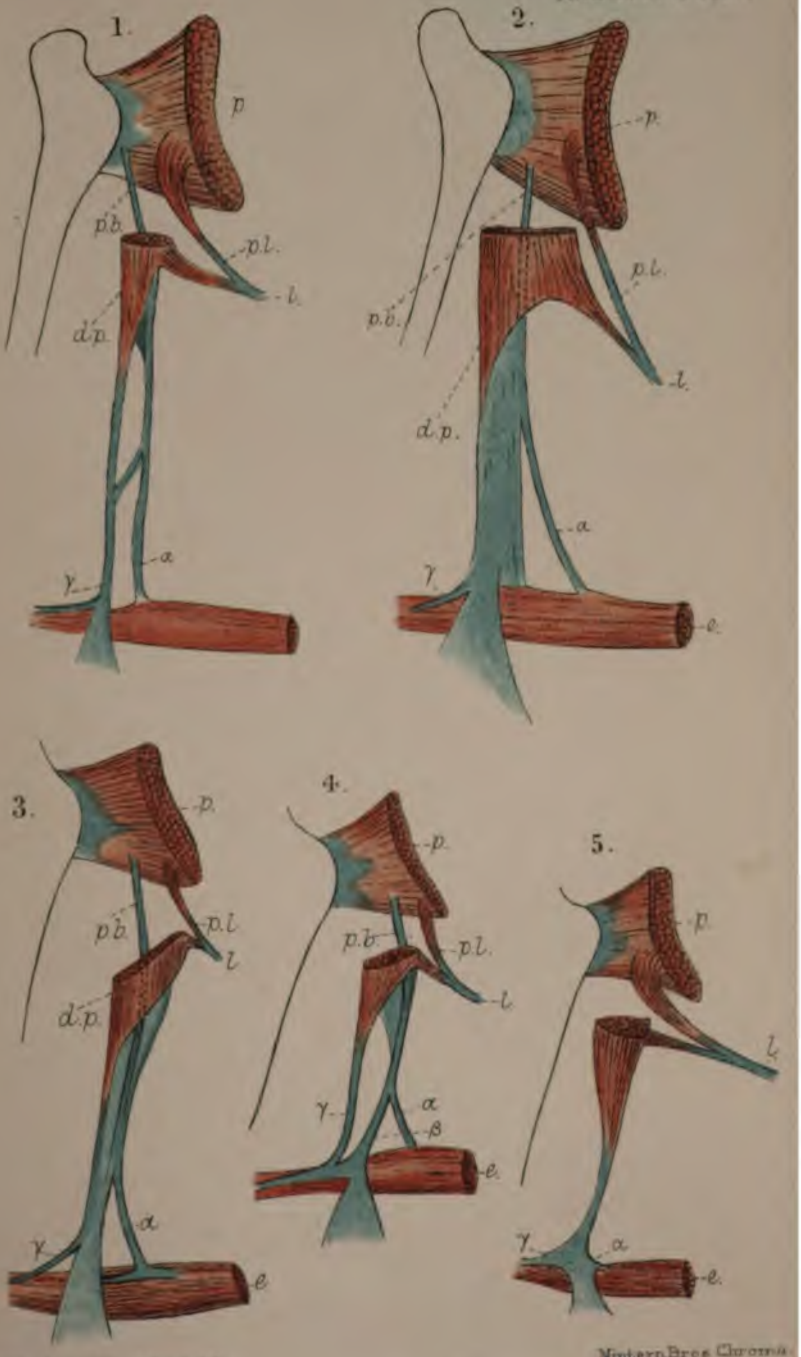
(10) Chalmers Mitchell.—"On the Perforated Flexor Muscles in some Birds." P. Z. S. 1894, p. 495.

EXPLANATION OF PLATES IV. & V.

Fig. 1. Alar muscles and tendons of *Dacelo gigantea.*
2. „ „ *Ceryle maxima.*
3. „ „ *C. alcyon.*
4. „ „ *Sauropatis chloris.*
5. „ „ *Ceryle americana.*
6. „ „ *C. inda.*
7. „ „ *Cittura cyanotis.*
8. „ „ *Halcyon pileata.*
9. „ „ *H. rufa.*
10. „ „ *Alcedo asiatica.*

All the figures represent the alar muscles and tendons. The outline of the humerus is to the left. Tendons and fasciæ are coloured blue; muscles red.

Ibis 1901. Pl. IV.

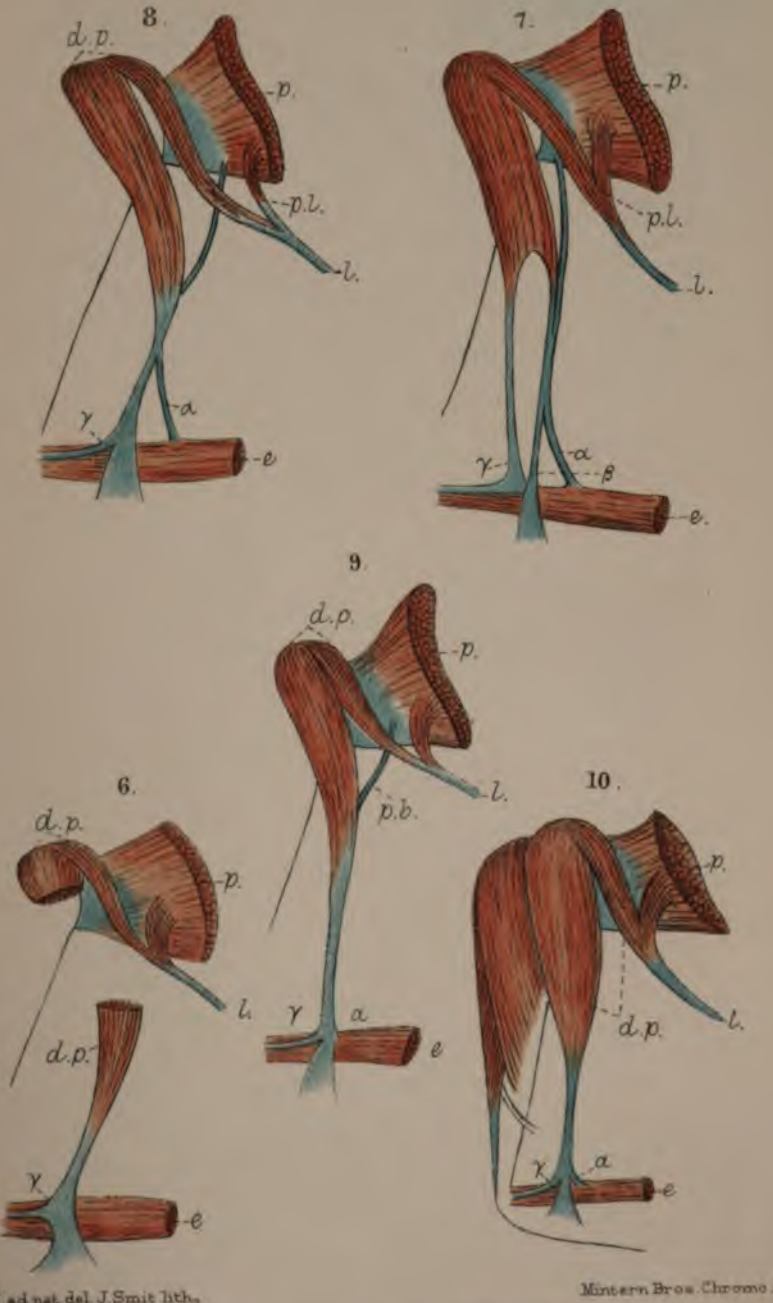


F.C.M. ad nat. del. J. Smit lith.

Mintern Bros. Chromo.

ALAR MUSCLES OF KINGFISHERS.

Ibis.1901.Pl.V.



P.C.M. ad nat. del. J. Smit lith.

Mintern Bros. Chromo.

ALAR MUSCLES OF KINGFISHERS.

p., pectoralis major.
p.l., „ longus slip.
p.b., „ brevis slip.
d.p., deltoides patagialis.
e., extensor metacarpi radialis.
α β γ Subdivisions of the *brevis* tendon, named by Fürbringer: γ is always most near the humerus, *i. e.* to the left in the figures; α most near the wrist, *i. e.* to the right in the figures; β is median, and usually forms a fan-shaped expansion.

IX.—*Report on the Anniversary Meeting of the Deutsche ornithologische Gesellschaft.* By E. Hartert (Delegate of the B.O.U.).

Those members of our Union who have ever fallen into the hands of the German Ornithological Society during one of their annual gatherings will easily believe me if I say that I was excellently received and with all the honour due to the delegate of the B.O.U., when I arrived in Leipzig on October 5th, 1900, to represent the sister Union at the fiftieth anniversary of the German Society. In fact, it was looked upon as a special compliment from our Union that I was selected as the representative, connected, as I am, so closely with the German Society, and so intimate as I have long been with many of its members.

With the exception of Dr. Otto Herman, of Budapesth, I was the only foreign delegate, but many German Scientific Societies had sent representatives to Leipzig.

Professor Rudolf Blasius, as President of the Society, opened the Meeting officially on October 6th.

Herr Hermann Schalow gave an interesting *résumé* of the history of the Society, which consists, in fact, of two former societies, amalgamated since 1875. The older of these had existed since 1845, but at first only as a section of the annual "Naturforscher-Versammlungen." In 1850, however, it was separated as an independent society. Only one of the original founders is still alive, Herr Kunz of Leipzig, who was present on this occasion, and was as active as a man in his best years.

Herr Schalow recognised two periods of the Society: the first from 1850 to 1875, which was principally devoted to European ornithology; the second after 1875, in which a wider view was taken, resulting in much good work done in exotic ornithology. A glance at the contents of Professor Cabanis's 'Journal für Ornithologie' bears out the statements of Herr Schalow, and I believe that a new "sub-period," at least of the 'Journal,' might be recognised since the time that the publication became the property of the Society (in 1893) and began to appear more regularly and to grow in size.

After Herr Schalow's lecture the representatives of other societies were ceremoniously received and made their speeches. Of these the better-known bodies, at least in England, were the Deutsche zoologische Gesellschaft (represented by Professor Chun), the Senckenbergische naturforschende Gesellschaft (by Herr de Neufville), the Verein zum Schutze der Vogelwelt (by Dr. Carl Hennicke), the Zoological and Ornithological Societies of Leipzig, Braunschweig, Neisse, Stuttgart, and the Ornithologische Centrale of Budapesth.

I did my best to express the goodwill and good wishes of the Members of the B.O.U., and gave a brief account of the origin and work of our Union, exhibiting the first and the latest volumes of 'The Ibis,' which, of course, compared most favourably with the 'Journal für Ornithologie.'

Drs. P. L. Sclater and R. B. Sharpe were elected Honorary Members of the "Gesellschaft."

The rest of the first day was occupied by a visit to the Zoological Gardens of Leipzig, the festival dinner (with very numerous speeches), and other entertainments. German ornithologists are not in the least averse to gaiety after their scientific meetings.

The second day, October 7th, was entirely devoted to science. A large number of lectures were delivered, some with exhibits of various kinds, and almost every one was followed by more or less lengthy discussions. The following subjects which came before us are specially noteworthy:—Count von Berlepsch spoke about Bolivian birds, exhibiting and describing a number of new forms. Professor Wilhelm Blasius described the fossil bird-deposits in the Rübeland caves on the Harz, and spoke of some Malayan birds. Professor Koenig discoursed on some rare Mediterranean birds. Dr. Helm criticized Gätke's supposed proofs of the rapidity of the flight of migrants. Professor Rudolf Blasius gave animated impressions of his visits to some parts of Western France, especially Normandy, Brittany, and Touraine, much regretting the want of adequate labelling with regard to locality and date of capture in the museums at most of these places. Herr Matschie dilated upon the affinities of the Polynesian fauna; Herr Schalow made proposals about a German ornithological bibliography; Herr R. Schlegel showed some varieties of *Rapaces* and *Tetraonidæ*; and Herr J. Thienemann made proposals for a permanent ornithological observatory-station, to be placed on the north-eastern point of Germany.

Only a short interval was allowed for luncheon and a visit to the Museum of the University of Leipzig, where a fairly good representative collection of birds may be seen, and where, at present, the very interesting collections of the Deep-Sea Expedition are on view. The egg-cabinets of Dr. Eugène Rey, famous for the enormous series of eggs of *Cuculus canorus*, were also inspected.

In the afternoon the scientific business was continued. Among others, Freiherr von Berlepsch spoke about the work of the section for the Protection of Birds in Paris in June; but the most interesting lecture on this occasion was that of Professor Reichenow, who compared the richness of the African Avifauna with that of other countries, and laid before the Meeting the first part of his great work on the Birds of Africa, which had just left the press.

The last day was devoted to an excursion, *viâ* Eisleben, to the "Süsse See," and to the scanty remains of a once wide-spreading "Salzige See," both historical localities in German ornithology, where the Naumanns made many of their observations and did much collecting. Afterwards the village of Volkmaritz, the new home of Pastor Kleinschmidt, was visited, and his interesting collection of Palæarctic birds was inspected.

Altogether the Meeting was very successful, and sufficed to prove that ornithological activity in Germany is rather increasing than diminishing.

It was decided that the next Annual Meeting of the German Society should be held in Berlin during the session of the Zoological Congress in August 1901, and a hope was expressed that some of their foreign ornithological colleagues would then be the guests of the Society.

X.—*Notices of recent Ornithological Publications.*

1. *Annals of Scottish Natural History.*

[The Annals of Scottish Natural History. No. 35, July 1900, and No. 36, October 1900.]

In an interesting article Professor Newton gives an account of his observations on the Great Shearwater, *Puffinus gravis* (O'Reilly), in Scottish waters; in the first instance near the Butt of Lewis on the 27th of June, 1894, and, secondly, on the 24th of June, 1895. The birds were in considerable numbers, and most of them were sitting in couples on the water. None were seen to dive, nor did any of them on those occasions strike the water with great violence in pursuit of food, as described by Captain J. W. Collins in the 'Annual Report of the [American] Commissioners for Fish and Fisheries for 1882,' p. 315, and also by Mr. Robert Warren in 'The Zoologist,' 1894, p. 22.

Mr. A. Nicol Simpson's "Contribution to the Ornithology of Kincardineshire" is concluded in the October number, and relates to a part of Scotland on the birds of which little has been written. Lt.-Col. Duthie gives an account of the semi-domesticated Greylags (*Anser cinereus*) of Blair Drummond, the descendants of a pair introduced from North Uist about twelve years ago. Among the usual short notices, Mr. Eagle Clarke's record of the occurrence of *Scops giu* towards the end of April on the remote island of Foula, in the Shetlands, shows a remarkable extension of that bird's range; North Ronaldshay, Orkney, in 1892, having been hitherto the furthest north that it has reached.—H. S.

2. '*The Auk.*'

[The Auk. A Quarterly Journal of Ornithology. Vol. xvii. Nos. 3 and 4, July and October 1900.]

The first paper in the July number of 'The Auk' is by Mr. H. W. Henshaw, on the "Occurrence of *Larus glaucescens* and other American Birds in Hawaii"; but inasmuch as the writer persistently speaks of certain Gulls by the trivial name of "Glaucous Gull," we are unable to recognise the exact species to which he refers, for *Larus glaucescens* and *L. glaucus* are perfectly distinct. We expected to find a correction or explanation of this error in the October number, but see none. The remaining birds identified in the Hawaiian group are *Diomedea chinensis*, *Mergus serrator*, *Crymophilus fulicarius*, *Calidris arenaria*, and *Gallinago delicata*, while other migratory species are hinted at. Mr. W. Brewster describes the breeding-habits of *Clangula clangula americana*, with two plates; Mr. W. Palmer treats of the "Ecology of the Maryland Yellowthroat and its relatives" (*Geothlypis*); Mr. J. O. Snyder has a short paper on the Birds of Idaho and Washington; Mr. Henshaw describes a new species of Shearwater, *Puffinus newelli*, from Hawaii; and Mr. A. W. Anthony contributes an interesting account, with a plate, of the nesting-habits of the Pacific-coast members of that genus. The names of the thirty new species of birds described by Mr. E. W. Nelson from Mexico may be left for the Zoological Recorder, who will also note Mr. Heber's new subspecies of the genus *Hylocichla*. Dr. T. H. Roberts gives a very full account, with illustrations, of the nesting of *Larus franklini* in Southern Minnesota, which shows that it breeds much further south than was supposed; and Mr. Outram Bangs sends notes on a collection of birds from the Bahamas.

The frontispiece of the October number of our contemporary illustrates a paper by Mr. Frank Bond on the nuptial performance of *Centrocercus urophasianus*. Professor J. A. Allen follows with an article on "Aptosochromatism," to which Mr. Bonhote may possibly be inclined to reply; and Mr. Carroll gives notes on the birds of Refugio County, Texas. Mr. W. H. Kobbe's account of the birds of Cape Disappointment, Washington State, deserves mention. Students of American Ornithology will appreciate Prof. Allen's remarks on North-American birds collected at Santa Marta, Colombia. Mr. Jonathan Dwight, Jun., has a long paper on the Moult of North American *Limicolæ*, which should be compared with Prof. Allen's aforesaid article on "Aptosochromatism." Among the minor notices, the record of our European Linnet (*Linota cannabina*) in New York State is interesting.—H. S.

3. *Bangs on a new* Geotrygon.

[A new Dove from the Sierra Nevada de Santa Marta, Colombia. By Outram Bangs. Proc. New England Zool. Club, i. p. 107, May 1900.]

The form of *Geotrygon* found on the Sierra Nevada of Santa Marta is separated from *Geotrygon linearis* (of Bogota) as a new subspecies—*G. l. infusca*.

4. *Bucknill's 'Birds of Surrey.'*

[The Birds of Surrey. By John A. Bucknill. 8vo. London: Porter. 1900. Pp. lvi, 374. 21*s*.]

Though the ornithology of Surrey has by no means been neglected in the past, as may be seen from the articles in 'Loudon's Magazine,' 'The Zoologist,' and elsewhere, by E. Newman (Rusticus), E. Blyth (Zoophilus), and others, nor have writers of the present day failed to interest themselves to a considerable extent in its Avifauna, the county has been singularly unfortunate in that it has never commanded the undivided attention of any author, with regard to its Birds, until so near the end of the century.

In the volume before us, however, Mr. Bucknill has undertaken to supply the deficiency, and has given us a very full list of the occurrences of the various species, with accounts in considerable detail of their distribution. The book cannot be considered wholly satisfactory, as somewhat too much reliance is at times placed on the testimony of little-known authors, while the works of F. O. Morris and "A Son of the Marshes" are apparently accounted "standard" and are placed on a level with those of Yarrell and so forth.

The Charterhouse School collection of birds, selected from that formed by the late Mr. William Stafford of Godalming, has nevertheless given the author a firm basis of facts on which to ground his structure; and, as he is most careful to inform us what his authority is in each instance, we can judge for ourselves how far it may be trusted.

A bibliography is followed by an introduction of 31 pages, in two nearly equal parts, which consists firstly of an account of the natural features of Surrey given in a most full and pleasing manner, and secondly of a bibliographical portion of considerable value. The illustrations consist of six admirable photogravures of local scenery after L. Danielsson, and thirteen reproductions of drawings by Mrs. Bell and H. W. Murray, with a map of the County.

The book is evidently the work of one who is thoroughly conversant with the district, though he is careful not to state with undue precision the exact habitat of the rarer breeding species.

5. *Butler on the Birds of the Andamans and the Nicobars.*

[The Birds of the Andaman and Nicobar Islands. By A. L. Butler, F.Z.S. Journ. Bombay Nat. Hist. Soc. xii. pp. 386, 555, 684; xiii. p. 144.]

Mr. A. L. Butler, F.Z.S., Curator of the Selangor State Museum, visited the Andaman and Nicobar Islands in 1897 and 1898, staying about nine months at Port Blair, and six weeks on some of the Nicobar Islands. In the present memoir he gives us an account of his own researches into the bird-life of the two groups, and compares them with the observations of Messrs. Hume and Davison in 1873 *.

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* See Mr. Hume's articles in 'Stray Feathers,' vol. ii. pp. 29–334 and pp. 490–501; also *op. cit.* vol. iv. pp. 279–294.

Altogether Mr. Butler includes 209 species in the Avifauna of these islands, and adds many excellent field-notes. A coloured figure is given of *Astur butleri* Gurney (Bull. B. O. C. vii. p. xxvii), which is "not uncommon in the forests of Car Nicobar."

Mr. Butler should have added to his paper a list of the species peculiar to the Andamans and Nicobars, and pointed out their nearest allies on the continent. This would have helped us to find out how these islands became stocked with bird-life. Geographically they are an extension of the ridge of Sumatra, and probably their zoological alliances are in the same direction, although this does not seem to have been Mr. Hume's opinion.

6. *Büttikofer on the Birds of Central Borneo.*

[Zoological Results of the Dutch Scientific Expedition to Central Borneo.—Birds. By Dr. J. Büttikofer. Notes Leyden Mus. xxi. p. 145.]

Dr. Büttikofer has already given an interesting general account of his expedition to Central Borneo in his preface to Dr. Jentink's essay on the Mammals procured for the Leyden Museum on that occasion. The report on the Birds of the expedition, now before us, has been delayed by the circumstances of the author's appointment to the Directorship of the Zoological Garden of Rotterdam.

In the present memoir Dr. Büttikofer adds to the list of the birds obtained by himself and his companions during the Central Bornean Expedition an account of a small collection made at Pontianak near the west coast by Mr. Moret, one of his assistants, after his return, and of others made by Dr. A. W. Nieuwenhuis and by Mr. Westenenk, some of which were from Eastern Borneo; and thus he reports altogether upon specimens referable to 269 species. A comparison of the Western and Eastern collections shows that, so far as the lowlands are concerned, the Avifauna of this part of the island is nearly homogeneous. Contrary to Dr. Büttikofer's expectations, as he was exploring a district ornithologically unknown, and as he paid special attention to the more obscure and local forms, not one of the 269 species enumerated proved to be new, and only two (*Harpactes orrhophæus* and *Cyanoderma poliogaster*) are additions to the Bornean Ornis. But a number of useful notes of all kinds will be found to accompany the list, and various species of special interest are emphasized. *Glaucidium sylvaticum* Bp. is held to be the correct name of *G. borneense* Sharpe, Bornean specimens being inseparable from those from Sumatra. Numerous specimens of *Calyptomene hosii* Sharpe were obtained by this expedition in the dense forests of the Liang Koeboeng range. In *Trichostoma rostratum* the male has the tarsi abnormally short (18 mm. instead of 25)—a very curious phenomenon, already noticed by Dr. Büttikofer (N. L. M. 1895–96, p. 87), but now clearly proved. A mated pair of the rare *Myiophoneus borneensis* were obtained during the expedition, and the nest and eggs taken. They are now described. Four pairs of the peculiar Bornean Pheasant, *Lobiophasis bulweri*, were procured in the dense mountain-forests.

Appended to this paper are good coloured figures (by Keulemans) of *Glaucidium sylvaticum*, *Siphia everetti*, and *S. beccariana*.

7. *Cook on the Antarctic Ornis.*

[Through the First Antarctic Night, 1898–1899. By Frederick A. Cook, M.D. London: Heinemann, 1900. 1 vol. 8vo. 478 pp. Price 20*s*.]

Dr. F. A. Cook, Surgeon, Anthropologist, and Photographer to the Belgian Antarctic Expedition of 1898–99, gives us a vivid account of the incidents of the voyage of the 'Belgica' and of his year's detention in the Antarctic ice. We need not here enlarge on the geographical and other general results attained, but may call attention to the frequent references to birds throughout the volume. Penguins are of course one of the leading features of animal life in Antarctica, and appear to be found there in greater or less abundance throughout the year. They supply fresh meat of a very healthful, if not of a very savoury quality. "Several lives," we are told (p. 334), "have certainly been saved by eating Penguins." Moreover, they were so kindly disposed as to come and be caught when summoned. "At meal-time a cornet is used to call the men together. The Penguins, when they hear it, make directly for the ship. In this manner we have only to wait and seize our visitors to obtain penguin-steaks, which are just at present the prize of the menu."

It seems that *Pygosceles adeliæ* is the prevalent species of the Antarctic islands, and breeds there in "countless millions." Frequent references are also made to the Emperor Penguin, *Aptenodytes forsteri*, specimens of which were obtained.

In the appendix on the general results of the expedition, the following short report on the bird-life will be found:—

"The birds constantly present upon the ice-pack are not numerous: the very large Petrel (*Ossifraga gigantea*), the Snow-Petrel (*Pagodroma nivea*), the Antarctic Petrel (*Thalassœca antarctica*), the Brown Sea-Gull (*Megalestris antarctica*), Forster's Penguin (*Aptenodytes forsteri*), and the Adelia-land Penguin (*Pygosceles adeliæ*) are the most common species."

The collection of birds made by the 'Belgica' has been sent to Mr. Howard Saunders, and a scientific account of it will be published hereafter. A Roumanian, Emile Racovitza, was the Naturalist to the Expedition.

8. *Currie on a new Bird of Paradise.*

[A new Bird of Paradise. By Rolla P. Currie. Proc. U.S. Nat. Mus. xxii. p. 497.]

This supposed new species, which it is proposed to call *Cicinnurus lyogyrus*, is based on a single skin in the U.S. National Museum originally obtained from Mr. A. Boucard. It shows a pectoral shield "nearly four times as long as in *C. regius*," shorter frontal plumes, and other differences, which are described and illustrated in an outlined plate. The specimen is labelled "New Guinea."

9. *Euler on the Nests and Eggs of Brazilian Birds.*

[Descripcão dos Ninhos e Ovos das Aves do Brasil. Por Carlo Euler. Revista do Museu Paulista, iv. p. 9, 1900.]

This is a republication, with additions and corrections and with revised nomenclature, of the four well-known articles on the nesting of Brazilian birds published by the author in the 'Journal für Ornithologie' for 1867 and 1868. In the first section of the article (Parte Descriptiva) particulars of all that has been recorded and is known of the nests and eggs of 223 species are given in systematic order. In the second part (Parta Comparativa) general conclusions are stated as to the mode of nesting and style of eggs of the various groups to which these 223 species belong. In the third part (Parte Biologica) particulars are given as to the number of eggs laid by each species, and as to the season of the year in which nesting takes place.

10. *Finn's 'Fancy Waterfowl.'*

[Fancy Waterfowl. By Frank Finn, F.Z.S. 1 vol. 4to. 46 pp. London, 1899.]

This is a reprint of a series of popular articles that have appeared in 'The Feathered World,' in which the most esteemed Waterfowl usually to be seen in collections on ornamental waters are described and depicted. It will be useful to amateurs as it is, but would have been more so if *all* the species hitherto kept in captivity had been treated of, so as to provide a complete work on the subject.

11. *Ihering on the Birds of Cantagallo and Nova Friburgo.*

[Aves observadas em Cantagallo e Nova Friburgo. Por N. von Ihering. Revista do Museu Paulista, iv. p. 149, 1900.]

As an appendix to Herr Euler's memoir (*suprà*, p. 132) Prof. Ihering has composed a list of the 368 species of birds that have been observed in the interior of the province of Rio Janeiro, in the neighbourhood of Cantagallo and of the adjoining settlement of New Fribourg. Our main authority on this subject is Euler, who laboured long and diligently in this district; but Lund, Burmeister, and others made some additions to the list. After the name adopted for each species, the authority for its occurrence in any locality is indicated by the initials of the collector.

12. *Ihering on the Birds of Rio Grande do Sul.*

[As Aves do Estado do Rio Grande do Sul. Por H. von Ihering. 12mo. Alegre, 1899. 42 pp.]

This is a reprint of an article contributed by Dr. von Ihering to the 'Annuario' of the Brazilian State of Rio Grande do Sul for 1900. After a preface, which contains general remarks on the sources of our knowledge of the Avifauna of this district and on its chief peculiarities, the author gives a complete list of the 362 species known to him as occurring within its limits, adding references to his list of the birds of the State of S. Paulo lately published in the third volume of the 'Revista do Museu Paulista'* and short descriptions of the few species of Rio Grande do Sul which are not found in the State of S. Paulo.

13. *Ihering on the Nesting of Brazilian Birds.*

[Catalogo Critico-comparativo dos Ninhos e Ovos das Aves do Brasil. Por H. von Ihering. Revista do Museu Paulista, iv. p. 191, 1900.]

In this memoir the energetic Director of the Museu Paulista has endeavoured to collect together all the information yet recorded concerning the nests and eggs of the birds of Brazil. The notes are arranged systematically according to the British Museum Catalogue of Birds, and references are given to the principal authorities on each species, while in some cases serious discrepancies in the different accounts of the same nest are pointed out. Some twenty-five nests are illustrated by figures in the text. This is a most useful compilation, and forms an excellent base for future work on a much neglected subject.

14. *'Irish Naturalist.'*

[The Irish Naturalist. A Monthly Journal of General Irish Natural History. Edited by G. H. Carpenter and R. Lloyd Praeger. Vol. ix. Nos. 1–12.]

We are glad to see the ornithological reputation of this Magazine fairly maintained, and it would take still higher rank if certain Irishmen contributed to its support, instead of sending their little papers about Ireland to be published in

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* See 'Ibis,' 1899, p. 460.

England! Messrs. Ussher, Warren, Williams, and a few others do their best; and Dr. C. J. Patten gives us an important article, with a map of distribution, on the Ruff (*Machetes pugnax*). The details of a new breeding-place of the Sandwich Tern (*Sterna cantiaca*) on Lough Erne, from notes by Mr. Warren, is an interesting feature; for until recently there was only one colony of this species known in Ireland. Another Snow-Goose, referred to *Chen nivalis* (Forster), is recorded (p. 109).—H. S.

15. *Kastschenko on the Birds of the Altai.*

[Results of the Zoological Altai-Expedition in the year 1898. Vertebrata. By N. Th. Kastschenko. Bull. Imp. Univ. Tomsk, 1899. Pp. 158, 3 pls. (Russian.)]

This work we know only from the notice of it in the 'Zoologische Centralblatt' (Jahrg. vii. p. 815). It gives an account of the results obtained by a small expedition sent out to the Altai under the leadership of Prof. Kastschenko in 1898. The names of the birds observed are stated in the notice. They include *Gypaëtus barbatus, Dryocopus martius, Sitta uralensis, Lusciniola fuscata, Ruticilla erythronota, Accentor altaicus, Pyrrhocorax alpinus, Otocorys brandti, Emberiza leucocephala, Charadrius geoffroyi*, and others of interest.

16. *Le Souëf on the Mud-nest-building Birds of Australia.*

[The Mud-nest-building Birds of Australia. By D. Le Souëf. Knowledge, xxiii. p. 92 (April 2nd, 1900).]

Besides the Swallows there are in Australia three species of birds belonging to three different genera that principally use mud in the composition of their nests. These are *Corcorax melanorhamphus, Struthidea cinerea*, and *Grallina picata*. Their nests and eggs are described and well figured in this article.

17. *Loomis on Californian Water-birds.*

[California Water-birds.—No. IV. Vicinity of Monterey in Autumn. By Leverett M. Loomis. Proc. California Ac. Sc. ser. 3, Zool. ii. No. 3.]

We have now received another of Mr. Loomis' essays on the Water-birds of California (*cf.* Ibis, 1897, p. 125). It refers to the species found in the vicinity of Monterey in autumn, and contains much valuable information on their migration. It is held that bird-migration is a habit, evolved by education and inheritance, which owes its origin and perpetuation to winter and the consequent failure of food. This is, no doubt, one great cause; but are there not others?

18. *Merriam on the Birds of Mount Shasta.*

[Results of a Biological Survey of Mount Shasta, California. By C. Hart Merriam. North Amer. Fauna, No. 16, 1899.]

In the summer of 1898 Dr. Merriam and his staff made a complete biological survey of Mount Shasta, "the pride of California," an extinct volcano 14,450 feet in altitude, situated near the sea north of San Francisco and completely cut off from the neighbouring mountains. The report on the Fauna and Flora of this district is very pleasant reading, and beautifully illustrated by numerous figures in the text.

The birds obtained and observed are referred to 136 species, the list of which is arranged according to the American Check-list and contains many excellent field-notes. One of the "most common, most characteristic, and most interesting" birds of the higher slopes of Mount Shasta is Clark's Crow or Nutcracker (*Nucifraga colombiana*), of which a pretty figure is given (p. 120). It usually feeds on the seeds of the white-barked pine (*Pinus albicaulis*), as the European Nutcracker does on those of the cones of *P. cembra*, while it ranges up to the edge of the snow at 11,000 feet. The Humming-birds of Shasta are *Selasphorus rufus* and *Stellula calliope*, the latter being the more common at high altitudes.

Besides the special lists of animals, the chapters of this report on the 'Life-zones of Shasta' deserve the careful attention of the naturalist.

19. *Norfolk and Norwich Naturalists' Society's Transactions.*

[Transactions of the Norfolk and Norwich Naturalists' Society. Vol. vi. Pts. 2-5, Vol. vii. Pt. 1. Norwich, 1896-1900.]

A natural desire to wait for the accumulation of papers on ornithology in the pages of our much valued contemporary has led to a longer delay than was contemplated, but we now resume the continuity of our notices of its good work. In Part 2, Mr. J. H. Gurney gives an account of the behaviour in life and the appearance in death of *Sceloglaux albifacies*, an Owl which is said to be nearly extinct in New Zealand. Professor Newton follows with an interesting record of the breeding of the Spoonbill in Norfolk as long ago as the reign of Edward I.; the bird being mentioned in the Patent Rolls, under the date of March 22nd, 1300, by its ancient name (Latinized to suit the language of the document) of "Popeler:" "cognate with or corrupted from the Dutch *Lepelaar*." In Part 3, Mr. Gurney has a suggestive paper on the tendency in certain birds to resemble other species; and he afterwards relates the results of his ornithological experiences in Switzerland, illustrated by a reproduction of Fatio and Studer's map showing the distribution of *Cypselus melba* during the breeding-season. Mr. J. E. Harting sends some notes on Hawking in Norfolk, supplementary to his paper in a former part of the 'Transactions' (vol. iii.) and a communication of Mr. Southwell in vol. v. Mr. H. E. Dresser gives a sketch of the affinities and distribution of some of the rarer European Warblers, with special reference to the capture of Pallas's Willow-Warbler (*Phylloscopus proregulus*) at Cley in Norfolk. A coloured plate of it, reproduced by permission from the late Lord Lilford's 'Birds of the British Islands,' is added. The specimen is now in the valuable collection of Mr. E. M. Connop, of Rollesby Hall. A list, by Mr. W. G. Clarke, of the birds found in the neighbourhood of Thetford occupies pp. 306–325. In Part 4, Mr. Southwell gives an interesting account of Feltwell Decoy, and also of the St. Helen's Swan-pit; he further describes the acquisition of one of the indigenous Norfolk Bustards, shot on Swaffham Heath about sixty years ago. Mr. S. F. Harmer describes some bones of a Pelican from the Cambridgeshire Fens. In a valuable paper Mr. Gurney discusses at some length the economy of the Cuckoo, and calls attention to several important points which require further attention. Among the minor notices are records of the occurrence of the Black-browed Albatross in Cambridgeshire [in 1897]; of *Larus cachinnans* near Yarmouth; and of a Tawny Pipit, also near Yarmouth, this being, strange to say, the first record of the species for Norfolk, though one has been ascribed to Lowestoft, in the next county. In Part 5, Mr. Gurney sketches the distribution of the Bearded Tit in England; Mr. W. Warde Fowler has a short article on birds observed in the Valley of the Somme; Mr. G. H. Caton Haigh gives details of the acquisition of *Lusciniola schwartzi*, new to England, and even to Europe; and Messrs. Gurney and Southwell contribute a very useful supplement, with many additions, to their former list of Norfolk birds.

In Part 1 of vol. vii. the ornithologist will find much to interest him in Mr. W. A. Nicholson's article on Sir Thomas Browne as a naturalist, and Mr. Southwell contributes one of his semi-antiquarian papers on Wildfowl-driving in the sixteenth century; while Professor Newton sends a note on the devouring of a Great Bustard, which was probably of Norfolk origin, at a banquet chronicled in 'Memoirs of the Vernon Family' in March 1675. In concluding this notice, we must not omit to say that in each Part Mr. Southwell records the additions to the Norwich Castle Museum, while Mr. A. Patterson's successive Natural History notes from Yarmouth deserve honourable mention.—H. S.

20. *North on a new Australian Bird.*

[Description of a new Bird from North-west Australia. By A. J. North, C.M.Z.S. Victorian Naturalist, xvii. p. 78, 1900.]

Eremiornis carteri is a new genus and species of Timeliine birds, of which two specimens were obtained by Mr. Tom Carter at North-west Cape, near Exmouth Gulf, N.W. Australia, in July 1899. "The slender bill, short tarsi, small feet, and abnormally long upper and under tail-coverts" distinguish this form from other Australian genera.

21. *Palmer on Economic Ornithology in the U.S.*

[A Review of Economic Ornithology in the United States. By T. S. Palmer. Repr. from Yearbook of Dept. Agricult. for 1899.]

This is a very interesting account of what is being done in

"Economic Ornithology" in the United States. A somewhat similar system, if it could possibly be kept within due limits, might be of advantage in England. "Economic Ornithology" deals with birds in their relation to agriculture, horticulture, trade, and sport; it treats of species important to the farmer, the fruit-grower, the game-dealer, the milliner, and the sportsman—in short it is the practical application of our knowledge of birds to the affairs of everyday life." In the present treatise the history of Economic Ornithology in the United States is considered under three heads:—(1) Investigations as to the value of birds; (2) their commercial uses; and (3) measures for their preservation and destruction, and for the introduction of important species. Although much had been done (wisely or unwisely) by previous workers in all these departments before 1885, it was the selection of Dr. C. Hart Merriam for appointment to what was shortly afterwards named the "Division of Biological Survey" in the "Department of Agriculture" that first led to systematic and continuous work on this subject.

We cannot undertake even to mention all the numerous investigations pursued by the Department since its institution, but will call attention to some of its principal pieces of work. Researches as regards birds supposed to be injurious—such as Hawks, Owls, and Crows—have been largely carried out, as we know by the reports on this subject frequently noticed in our Journal. The Biological Survey has a collection of some 32,000 birds' stomachs, which are gradually being examined and reported upon. Some birds hitherto considered more or less noxious have been pronounced "not guilty," even the Crow being considered to do "more good than harm," whilst the "English Sparrow" is the only species that has been unreservedly condemned. "Game-birds" generally are pronounced to be useful to the farmer, and their consumption in North America as food seems to be enormous, some species (such as the Prairie-fowl and Passenger Pigeon) having now been seriously reduced in numbers by undue slaughter.

Mr. Palmer also tells us much about the wholesale collection of eggs for food which has been practised at various points on the American coasts, and of the destruction of certain species of birds to supply the hateful millinery traffic, and gives us many particulars on these well-known subjects. Lastly, he writes of the guano-trade, which, like "eggs" and "feathers," has been much overworked of late years. A map illustrates the distribution of the 54 islands in the Pacific which have been taken possession of by the citizens of the United States for the purpose of removing the guano; but most of them are now nearly or quite exhausted.

Finally the measures, some wise and some unwise, that have been taken in various States for the destruction and preservation of birds are epitomized; and an account is given of the attempt to contaminate the Neotropical avifauna by the introduction of foreign species. Except in the notorious case of the "English Sparrow," and perhaps in that of the Pheasant, the majority of these, we are pleased to say, are pronounced to have been unsuccessful.

22. *Palmer on the Bird-Laws of the United States.*

[Legislation for the Protection of Birds, other than Game-Birds. By T. S. Palmer. Bull. U.S. Dept. Agric. No. 12, 1900.]

The chief object of this report is to afford information respecting the regulations for the protection of birds (other than game-birds) that have been made in various parts of the American Union. Abstracts of these laws, which have been passed in nearly every State except Alaska, are given under the heads of the names of these States arranged alphabetically. But this is prefaced by a general discussion on protective legislation for birds, which is fully considered in its various aspects. It is certain that, in spite of what has been done, "bird-destruction is going on rapidly in the United States," and that it would be very desirable to effect a greater degree of uniformity in the laws on this subject in the fifty different commonwealths than that which at present exists.

23. *Pike on Bird-land.*

[In Bird-Land with Field-glass and Camera. By Oliver G. Pike. 8vo. London: Unwin, 1900. Pp. xvi, 280. Price 6s.]

This little book consists of pleasing studies of bird-life from the pen of an accurate observer of everyday occurrences, who, moreover, shows a proper anxiety for the preservation of the rarer species. The scope of his observations is chiefly confined to the counties lying immediately to the north of London, though three chapters are devoted to the Norfolk Broads; the woods, fields, hedgerows, and streams being all laid under contribution. By various devices, and by the aid of a silent shutter, he has been able to take 83 photographs of birds at very close quarters, even when they are sitting upon or entering their nests. The pictures are of very unequal merit, but those referring to the Bearded Tit on pp. 224, 229, and 231 are quite true to nature.

24. *Pycraft on the Pterylosis of the Megapodes.*

[A Contribution towards our Knowledge of the Pterylography of the Megapodii. By W. P. Pycraft. Reprinted from A. Willey's 'Zoological Results,' Part iv. pp. 483–492, pl. xlix.]

This paper contains one of those important pieces of work in which to find no fault is the highest praise. Consequently we may at once devote our attention to a study of the contents.

The material in Mr. Pycraft's hands consisted of a series of embryos of unknown parentage and one newly-hatched nestling (probably of *Megapodius eremita*) procured by Dr. Willey, together with an embryo of the same species, one of *Megacephalon maleo*, and the type of *Megapodius pritchardi* (in spirit), used for comparison.

New and remarkable points noted by the author are as follows:—(1) The precise details of the pterylography of both adult and embryo; (2) the arrested development in the nestling of the outermost primaries and of the 1st (2nd) cubital remex; (3) the different rate of growth of the fore-arm from that of the manus in the embryo. With regard to

(2) and (3), the young of *Opisthocomus* and *Gallus* agree with that of *Megapodius*.

We are further informed that the pterylosis is practically the same in the adult and in the embryo, while in both of these the wing is diastataxial (aquintocubital) ; the nestling, moreover, lacks the twelve rectrices found in the full-grown bird.

The nestling *Megapodius* has no *præplumulæ* [or what might be termed ante-down-feathers], neither are its feathers *præpennæ* [ante-contour-feathers], the latter being shed early in embryonic life or only remaining in the form of transitory rudiments, which may be seen on the tips of the remiges of the ripe embryo. If these represent the præpennæ of other birds, they differ in that the rami are disintegrated within an unbroken sheath. Owls have similar plumage during their first year, following upon the præpennæ, but *Megapodius* possesses it at birth.

The structure of the nestling-plumage is probably unique; the feathers have a long, simple, main shaft, with a well-defined aftershaft, both having close-set, bilaterally arranged, delicate rami, beginning near the base and reaching to the tip, while the radii, which clothe the whole of the rami, are often produced into *fila*, the homologues of the hooklets of contour-feathers. The rami at the distal end of the main shaft are basally compressed into blade-like *laminæ*, wherein they resemble those of the præpennæ in the young Tinamou.

25. *Reichenow's Birds of Africa.*

[Die Vögel Afrikas. Von Ant. Reichenow. Erster Band. Erste Hälfte. 4to. Neudamm: J. Neumann, 1900. Pp. 320. Price 50s.]

The great interest now taken in African ornithology is indicated by the issue of two special works on it, of nearly the same scope, at the same time. While Capt. Shelley is writing his 'Birds of Africa' in London, Prof. Reichenow is preparing his 'Vögel Afrikas' in Berlin. The first "half-volume" of the latter important work has lately been received in this country. It commences with an essay on the history of ornithological exploration in Africa, which extends to some 30 pages, and is followed by a very useful list of 1003 publications relating to the subject. After a general introduction, in which two coloured maps show the author's proposed zoological divisions of Africa in comparison with those used by Wallace in 1876, the systematic portion of the work is commenced. This, we are sorry to see, commences at the lowest instead of the highest forms (contrary to what has been the practice until recently in nearly all systematic works). It contains an account of 19 families, from the Struthionidæ to the Ibididæ, containing altogether 273 species. Each of these is described: its chief synonyms and exact range are given, while particulars as to habits, nesting, and other peculiarities are added, so far as they are known. Part II., to complete the first volume, is promised in April next.

26. *Seebohm's 'Monograph of the Thrushes.'*

[A Monograph of the Turdidæ, or Family of Thrushes. By the late Henry Seebohm. Edited and completed (after the Author's death) by R. Bowdler Sharpe, LL.D., F.L.S., &c. Part IX. Imperial 4to. London: Henry Sotheran & Co., 1900. Price 36s.]

We have now before us Part ix. of Seebohm's 'Monograph of the Thrushes,' as edited from his unfinished MS. by Dr. Sharpe. It continues the history of the Blackbirds, of which 14 species are treated in the present number.

The following species are figured:—

Merula simillima.
—— bourdilloni.
—— kinnisi.
—— ludoviciæ.
—— flavipes.
—— polionota.
—— melanopleura.

Merula pritzbueri.
—— poliocephala.
—— tempesti.
—— canescens.
—— papuensis.
—— alpestris.

Merula venezuelensis is a new form of *M. flavipes* from Venezuela, and *M. polionota* another of the same group from Roraima, based mainly on the difference of the female. *M. melanopleura* of Trinidad is a third of the same group.

27. *Selous on Sport and Travel.*

[Sport and Travel, East and West. By Frederick Courtney Selous. Illustrated. 1 vol., 8vo. 312 pp. Longmans: London, 1900. Price 12*s.* 6*d.*]

Mr. Selous's narrative of 'Sport and Travel' is mainly concerned with the larger creatures of the Mammalian Class, which were the particular objects of his excursions in Asia Minor and North America. But there are many chance allusions to birds in its pages, and one of the chapters of his adventures in Asia Minor specially refers to ornithology; while, as we all know, the author is a devoted birds'-nester, and never misses a proper opportunity of taking a "good clutch" of eggs with his own hands. The excellent full-page illustration (p. 134) of "Mustapha robbing an Eagle's Nest," and the amusing description of the incident, will at once evoke the sympathies of all true members of the B.O.U. The announcement that a large flock of Great Bustards is habitually to be met with close to a railway-station is sufficient to induce some of our more ardent friends to rush off to Smyrna at once. Moreover, Vultures, Lämmergeiers, and other attractive Raptores are found breeding in this district, besides the numerous Passeres, of which Mr. Selous has already written in this Journal*. To see "quite one hundred" Rough-legged Buzzards flying about the mountain-side together is another attraction to Asia Minor.

28. *Sharpe's 'Hand-list of the Genera and Species of Birds,'* Vol. ii.

[A Hand-list of the Genera and Species of Birds. (Nomenclator Avium tum Fossilium tum Viventium.) By R. Bowdler Sharpe, LL.D., F.L.S. Vol. II. London. 8vo. Pp. xv, 312. Printed by order of the Trustees of the British Museum. 1900. Price 10*s.*]

The scope and object of the new 'Hand-list' of the Genera and Species of birds living and extinct have been mentioned in our notice of the first volume of this important work ('Ibis,' 1900, p. 213). The second continues the list of Carinatæ, and embraces what we should call the Psittaci and Picariæ, which, according to Dr. Sharpe's Classification, ought to be arranged in the following six "Orders." It should be observed that "Order XVIII. Palamedeiformes," having been accidentally omitted in vol. i., the first Order in vol. ii. is the twenty-eighth, not the twenty-seventh.

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* See 'Ibis,' 1900, p. 406.

	Order.	No. of Genera.	No. of Species.
XXVIII.	Psittaciformes	83	586
XXIX.	Coraciiformes	218	1237
XXX.	Trogones	10	56
XXXI.	Coccyges	52	238
XXXII.	Scansores	29	218
XXXIII.	Piciformes	64	509
		456	2844

While fully admitting the value and utility of the new 'Hand-list,' we must once more express our regret that it should commence from the bottom of the Series of Birds instead of from the top—just the reverse of the course pursued in the 'Catalogue.' Some writers will follow the system of the 'Catalogue' and others that of the 'Hand-list,' which will cause much confusion. It should be also observed that all the writers of the individual portions of the 'Catalogue' have followed the "top-to-bottom" plan, which is likewise used as regards these individual portions in the 'Hand-list.' So that the 'Hand-list' proceeds as it were from the bottom upwards by a series of minor descents (from the top to the bottom) in the individual portions. When the ordinary plan of commencing with the higher forms and descending to the lower is followed, we get a uniform descending series, which is much better.

In his Introduction to vol. ii. the author "urges on all ornithologists that full advantage should be taken of any doubt which can prevent the displacement of a well-known generic or specific name by one less-known." This is a most worthy sentiment, to which the many zoologists who are sick of the frequent changes proposed by the advocates of "unlimited priority" will all agree. But we may ask, why is this excellent inspiration not more closely followed by the author who puts it forward? Take, for example, the generic term "*Chrysotis*" in the Psittacidæ, which was accepted, for good reasons, by Count Salvadori (our greatest living authority on the subject) in the 'Catalogue.' Yet in the 'Hand-list' preference is given to "*Amazona*," and it is proposed to alter the name in some 50 species accordingly! On the other hand, we cannot be too grateful to Dr. Sharpe for retaining the name "*Cypselus*" for the Swifts and rejecting "*Apus*," which the advocates of unmitigated priority have attempted to force upon us (*cf.* Ibis, 1897, p. 290).

29. *Shelley's 'Birds of Africa,'* Vol. ii. pt. 2.

[The Birds of Africa. By G. E. Shelley, F.Z.S., F.R.G.S. Vol. II. Pt. 2. London: Porter, 1900. 8vo. Pp. 348. Price 21*s*.]

In the present part of his work Capt. Shelley continues his account of the African Passeres in the manner described in our last notice (see Ibis, 1900, p. 560), and treats of the following families:—Promeropidæ, Zosteropidæ, Parisomidæ, Paridæ, Certhiidæ, and Motacillidæ [part]—with which he concludes the second volume. "Parisomidæ" is a new family formed to contain *Parisoma*, "*Alcippe*," and their allies. But we cannot quite agree in uniting the African *Lioptili* (which are certainly closely allied to *Parisoma*) to the Asiatic form "*Alcippe*." Altogether 196 species are contained in the present volume, which stops with the genus *Anthus* in the middle of the Motacillidæ.

The following species are figured:—

Zosterops ficedulina.
Speirops leucophæa.
Zosterops comorensis
Malacirops e-newtoni.
Parus xanthostomus.
—— albiventris.
Alcippe abyssinica.
Ægithalus musculus.
Motacilla vidua.
—— nigricotis.
Anthus lineiventris.
—— crenatus.
—— calthorpæ.
—— brachyurus.

Four species appear to be described for the first time in this part:—*Zosterops comorensis* (from the Comoro Islands), *Motacilla nigricotis* (from S. Africa), *Anthus melindæ* (from

British East Africa), and *A. vaalensis* (from Northern Natal and the Transvaal).

30. *Stirling and Zietz on* Genyornis newtoni.

[*Genyornis newtoni.* A new Genus and Species of Fossil Struthious Bird. By E. C. Stirling and A. H. C. Zietz. Mem. R. Soc. South Australia, vol. i. pt. 2. Adelaide: 1900.]

This is a useful reprint, with additions and corrections, of the two articles in the 'Transactions' of the Royal Society of South Australia already noticed (see Ibis, 1897, p. 135; 1899, p. 328). The sternum, ribs, coraco-scapula, and wing-bones of *Genyornis* are now described and figured; but we still require an account of the skull, which is promised shortly.

There can now be no doubt that this bird was a gigantic Emeu, rivalling *Dinornis* in its height, which is estimated to have been over 6 feet. Conspicuous differences are the enormous head, huge femur, and the reduction of the number of digits in the outer toe from the normal five to four. On this point the authors remark:—

"This fact must oppose the view that *Genyornis* stands in the direct ancestral line of the existing members of the group. For the segment in question having been once dropped, it seems impossible that it should have been re-acquired by the later forms. These facts, however, notwithstanding, the Emeu, so far as we have proceeded, would appear to be the nearest ally of the fossil *Genyornis,* though there are undoubtedly resemblances, other than in respect to mere bulk, to the Dinornithidæ."

31. *Ussher and Warren's 'Birds of Ireland.'*

[The Birds of Ireland. By Richard J. Ussher and Robert Warren. London: Gurney & Jackson, 1900. Pp. xxxii, 419. Price 30*s*.]

Since the year 1851, when the third volume of Thompson's 'Natural History of Ireland' was issued, no detailed account of the Avifauna of that country as a whole has been published, and we are therefore ready, and more than ready, to welcome the excellent work before us from the pens of those well-known Irish ornithologists, Messrs. Ussher and Warren. But, while heartily congratulating them on the result of their labours, and on the care and accuracy displayed in their pages, we must not forget to couple with their names that of Mr. R. M. Barrington, whose records of observations made at Irish Light-stations have been continually utilized, and whose name was only withdrawn from the title-page of this book on account of the fact that he was simultaneously engaged in preparing a digest of the records already mentioned.

After an interval of nearly fifty years, it is no light task to check the records which have been accumulating, and to bring the lists of occurrences up to date; so that the authors are fully justified in devoting a large portion of their available space to an account of the distribution of the 288 species which they admit. Migration and seasonal movements are, however, duly considered, and that general habits are by no means neglected may be readily seen from the well-written and valuable articles on the Siskin, Crossbill, Chough, Peregrine Falcon, and Woodcock.

An Introduction on the natural features of Ireland and other matters of interest, tables of distribution of Birds in the breeding-season, a list of their Irish names with the meanings or derivations, an Appendix treating of doubtful species, and two Maps, with the unreclaimed areas distinctly marked, give additional value to the work of the authors.

Schedules were, in the first place, issued to correspondents in every county of Ireland, and a large amount of information thereby amassed, in addition to that gathered by the writers themselves both at home and on their expeditions, and thus it has come to pass that from a supplement to Thompson's work —such as was originally contemplated—the book has grown to its present dimensions.

Ireland is especially fortunate in the number of wildfowl from the north which seek its shores in winter, while the mild climate has at times induced such birds as the Quail and Corncrake to pass that season within its limits. On the other hand, many species are conspicuous by their entire, or almost entire, absence in summer, among which may be mentioned the Lesser Whitethroat, the Marsh Titmouse, the Hawfinch, the Carrion Crow, the Wryneck, the Green and Lesser Spotted Woodpeckers, the Short-eared Owl, and the Eider Duck.

Of the Missel-Thrush, Redstart, Magpie, Starling, Jackdaw, Swift, Stock-Dove, Ring-Dove, Shoveller, Tufted Duck, and Woodcock an increase is reported, while it is pleasant to hear that the Marsh- and Hen-Harriers and the Eagles still hold their ground in favoured spots. Attention is called to the fact that Giraldus Cambrensis, in the twelfth century, stated that Cranes were then numerous, and the discovery of bones of the Great Auk in the kitchen-middens of Antrim and Waterford is chronicled.

The illustrations are reproductions of photographs by Mr. Barrett-Hamilton and others, with a coloured frontispiece of the eggs of the Peregrine Falcon.

32. '*Victorian Naturalist,*' No. 3.

[The Victorian Naturalist, the Journal and Magazine of the Field-Naturalists' Club of Victoria. Vol. xvii. No. 3. Melbourne: 1900. Price 6*d.*]

The organ of the Field-Naturalists' Club of Victoria usually contains information of interest to the ornithologist, and the part now before us is no exception to the rule. Mr. R. Hall continues his notes on Australian species, and records for the first time a Pardalote (*Pardalotus affinis*) as being the foster-parent of one of the parasitic Cuckoos (*Chalcococcyx plagosus*). He also gives the results of observations on the time required by certain birds to attain the adult state, in which there seems to be considerable divergence. Mr. D. Le Souëf reports an instance of the Australian Eagle (*Aquila audax*) attacking a sheep-dog when following its master.

33. *Vorderman and Finsch on the Birds of Java.*

[Systematisch Overzicht der Vogels welke op Java inheemsch zijn door A. G. Vorderman, van Aanteekeningen voorzien door Dr. O. Finsch. Natuurk. Tijdsch. Ned.-Indië, Deel lx. Afl. 1, 1900.]

This is a new and complete List of the Birds of Java, prepared by Heer A. G. Vorderman, a well-known authority on the subject, and revised by Dr. Finsch, of the Leyden Museum. After a short historical sketch of our knowledge of Javan ornithology, commencing with Baron Frederic von Wurmb in 1774, and a list of Heer Vorderman's numerous papers, there follows a catalogue of the 410 Javan birds now known to us, of which 75 are designated as restricted to the island. References are added to the British Museum Catalogue and a few other authorities. A Penguin (*Catarrhactes chrysocome*) is placed in the list on the authority of a specimen in the Dresden Museum. We should venture to question the authenticity of this locality.

34. *Westell's 'Year with Nature.'*

[A Year with Nature. By W. P. Westell. London: Drane, 1900. Pp. xvi, 276. Price 10*s*. 6*d*.]

This book consists of a series of essays on 'Nature,' under the headings of the different months, in the pages of which birds have allotted to them a considerable share. Most of these essays were originally published in magazines or newspapers. However suitable they may have been, both in letterpress and illustrations, to periodical literature, it is a little difficult to understand what object is served by their reproduction in the present form, especially as the author particularly disclaims in his preface any attempt at the cultivation of literary style or artistic merit.

35. *Winge on the Birds of the Danish Lighthouses,* 1899.

[Fuglene ved de Danske Fyr i 1899. 17de Aarsberetning om Danske Fugle. Ved Herluf Winge. Vid. Meddel. fra d. naturh. Foren. i Kbhvn. 1900, p. 159.]

The 17th yearly report on the birds observed at the

Danish Lighthouses is drawn up on the same plan as former Reports (*cf.* Ibis, 1900, p. 216), and is accompanied by the usual excellent map. In 1899, 868 specimens of birds were sent from the stations to the Zoological Museum of Copenhagen, and referred to 56 species. It is curious that such birds as *Alauda arvensis*, *Turdus merula*, and *Erithacus rubecula*, which we should be inclined to class as sedentary in England, are found wandering about in the Danish archipelago.

XI.—*Letters, Extracts, Notices, &c.*

We have received the following letters, addressed to 'The Editors' by Mr. D. Le Souëf, Mr. R. Shelford, and Mr. W. L. Sclater:—

Sirs,—I notice that Mr. H. C. Robinson, in his "Contributions to the Zoology of North Queensland," in the Bull. Liverp. Mus. ii. p. 115 (1900), treats the *Dacelo gigas* found there as being doubtfully subspecific under the name of "*D. g. minor.*" These birds extend from the South-eastern portion of Australia right through to the North-eastern, without any break, and as we go further towards the north they gradually decrease in size, but very slightly. Those found in the extreme north are, therefore, less in their measurements than those from further south, but cannot well be referred to a subspecies on that account, as intermediate sizes are found. The same remark applies to several other birds, such as *Manorhina garrula* and *Trichoglossus novæ-hollandiæ*, which also extend over the continent on the eastern side. In Northern Australia some of the birds, which are either weak in flight or local in their ranges, such as *Calyptorhynchus funereus* and *Psophodes crepitans*, have notes slightly different from those of the same kind found in the more southern districts; and as we go from one extreme of the Continent to the other, the note often seems to change gradually. Mr. Robinson mentions the range of *Prionodura newtoniana* as now extending to Mount Peter

Botte. But I recorded this bird as being found in that locality in a paper published in the 'Victorian Naturalist' for March and April 1897.

Yours &c.,
D. Le Souëf.

Melbourne, August 16th, 1900.

Sirs,—I have to record the capture of the rare Snipe-billed Godwit, *Macrorhamphus Taczanowskii*, in August last, near the mouth of the Trusan River, Sarawak. The solitary specimen secured was an adult female, still showing traces of the summer plumage in the rufous coloration of the breast, a few of the feathers of the neck and back being also tipped with the same colour. The late Mr. A. H. Everett records the species in his List of the Birds of Borneo (Journ. Straits Br. Asiat. Soc. 1889, p. 209), giving Pontianak as the locality and Diard as his authority. The Sarawak Museum also possesses a specimen of an adult male in the typical winter dress, shot at Buntal, Sarawak River, in November 1892; but these seem to be the only notices of the occurrence of the species so far to the south-east.

Another visitant to our shores may be noted, to wit the Tufted Duck (*Fuligula cristata*), a male example of which was shot in December last in Kuching. This record very considerably extends the southern range of the species. It is perhaps noteworthy that the Anatidæ, though common enough during the N.E. monsoon at the northern end of Borneo, are extremely rare in the south-western end, which seems to be rather out of their line of migration.

Yours &c.,
R. Shelford,
Curator, Sarawak Mus.

Sarawak Museum, Sarawak,
Sept. 21st, 1900.

Sirs,—In revising the account of the Shrikes prepared by the late Dr. Stark for the second volume of the 'Birds of South Africa,' I found, to my surprise, that the Grey-headed

Bush-Shrike (*Laniarius poliocephalus*, Sharpe's edition of Layard) will require a new specific name. The names by which the bird has hitherto been known are:—(1) *blanchoti* (*Malaconotus blanchoti* Stephens, General Zool. xiii. p. 161, 1825); (2) *icterus* (*Laniarius icterus* Gray, Genera of Birds, i. p. 299, 1847); and (3) *poliocephalus* (*Lanius poliocephalus* Licht. Verz. Doubl. p. 45, 1823).

Of these three, the first two are founded on Le Vaillant's '*Pie-grièche Blanchot*' (Ois. d'Afr. vi. p. 122, pl. 285, 1808), which is stated to have been obtained in West Africa; while Lichtenstein's *L. poliocephalus* was also founded on a West-African bird. *Laniarius hypopyrrhus* Hartl. (Verz. Brem. Samml. p. 61) again is West-African; while *Archolestes approximans* Cab. (von der Decken's Reise, iii. p. 27) is East-African.

I have not been able myself to compare the Grey-headed Bush-Shrikes of South Africa with those from North-east and West Africa; but Capt. Shelley has kindly done so for me, and tells me that he can easily distinguish three species as follows:—

A. Larger, wing 4·8 inches; no trace of chestnut on the crop. (Senegal to the Quanza R.)
B. Smaller; crop washed with chestnut.
  a. Crop chestnut-yellow; wing 4·5 inches. (South-east Africa northwards to the Pangani River.)
  b. Crop rich chestnut. (East Africa north of the Pangani River.)

Of these the first will stand as *Laniarius poliocephalus* (Licht.), the last as *Laniarius approximans* (Cab.); and for the middle one, from South-east Africa, I propose the name of *Laniarius starki*, in memory of my friend and collaborator Dr. A. C. Stark, the author of the first volume of the 'Birds of South Africa,' whose untimely death at Ladysmith is deplored by all of us.

Yours &c.,
W. L. SCLATER.

South African Museum, Cape Town,
Oct. 1st, 1900.

The Birds of Antarctica.—Mr. Borchgrevink's paper in the 'Geographical Journal' for October last, upon the Expedition of the 'Southern Cross,' contains several interesting passages on the birds of 'Antarctica.' The first Emperor Penguins (*Aptenodytes forsteri*) were met with on January 18th, 1899, in about lat. 65° S. and long. 164° E.

"The Common Penguin of Victoria Land is *Eudyptes adeliæ*. As in 1894, the rookery of these birds at Cape Adare covered the whole peninsula of Camp Ridley; their nests, placed above the guano deposits, being formed of small pebbles, probably blown from the top of the cape by the gales. In 1894 the colony was inhabited almost entirely by white-throated Penguins, whereas those met with on our outward voyage in 1899 had nearly all black throats. I was able to prove that both are of the same species; the young birds, which are left behind when the adults go to sea, having more or less white throats*. It was curious to see the Penguins as they invaded the peninsula in the spring, one continuous stream passing over the ice from October 14 onwards. They at once started nest-making, taking possession of their old places, and bringing fresh pebbles to the nests. During the time of love-making they had many hard fights. As a general rule two eggs are laid, while three are very seldom found; the period of incubation, during which both parents take their turn on the nest, lasted in 1899 from the beginning of November to early in December. During heavy gales the birds, which ordinarily sit upright or lie facing various directions, all turned with their beaks to the south-east, the direction from which we had the heaviest gales. The Skua is the worst enemy of the Penguin, constantly soaring over the nests and watching an opportunity to steal an egg or young bird.

"We saw comparatively few of the Emperor Penguin (*Aptenodytes forsteri*), nor were we able to find their nesting-place. In the autumn of 1900, we for the first time saw several together, and even then only in small numbers. They came swimming like the small Penguins, with which, however, they did not mix.

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* [The white-throated form is the *Dasyrhamphus herculis* Finsch, but has been correctly re-united to *Pygoscelis adeliæ* in the B. M. Catalogue (xxvi. p. 633).—Edd.]

"The Skuas (*Lestris*) arrived and laid their eggs somewhat later than Penguins. They made their nests in the heights, up to 1000 feet on Cape Adare.

"Of Petrels, *Oceanites oceanicus* also hatched on Victoria Land, the nests being found in cracks of the rocks and under boulders. The elegant White Petrel (*Pagodroma nivea*), with black eyes, beak, and feet, likewise builds in cavities of the rocks. These birds are attractive both in appearance and habits. The pairs show deep attachment, and the courage of the male is indomitable when its mate is in danger. The Brown-backed and Giant Petrels were seen, but their nests were not discovered. I believe the former breed on Geikie Land. The Giant Petrels seemed to arrive before the approach of gales, and I attributed their visits to strong winds at sea, which drove them towards the shore for shelter. In their flight they much resemble the Albatross."

We may add that the whole collection of birds made during the expedition of the 'Southern Cross' is now at the British Museum for determination.

Ridgway's Birds of North and Middle America.—We regret to hear that the progress of Mr. Ridgway's great work on the Birds of North and Middle America was much retarded by the author's ill-health last year, but are pleased to learn that he has lately been able to resume his labours, and that the first volume (containing his account of the Fringillidæ, Tanagridæ, and Icteridæ) will be issued shortly. The area embraced in the work is the whole of the American continent down to the Isthmus of Panama, and includes also the West Indies and the Galapagos. The entire Avifauna will therefore contain about 3000 species, which are referred to 750 genera and 300 families. The illustrations of generic characters begun in Baird's 'Review,' and continued in the 'History of North American Birds,' will be extended in the present work so as to mbrace all the genera which occur within its limits.

Attempted Re-introduction of the Great Bustard into England.—We are pleased to learn that serious attempts are being made to reinstate the Great Bustard (*Otis tarda*) in some of the districts of East Anglia where it was formerly abundant, and we see no reason why they should not be successful. A circular has been sent out by the Norfolk and Norwich Naturalists' Society to the principal landowners in Norfolk, inviting their co-operation in giving special protection to this bird, which, it should be recollected, has always remained one of the species included in the list of legal game. It is announced that 16 Great Bustards have been liberated "on a run of 400 acres, which will be shortly increased to 800," but we trust that the "protected area" will be much more extensive. It has also been arranged that additions shall be made to the stock every year, which of course will materially add to the chance of the re-establishment of the bird. This is, indeed, a step in the right direction, very different from some of the modern operations of the friends of "Acclimatization"!

Mr. Wiglesworth's Expedition to the Pacific.—Mr. L. W. Wiglesworth left London on November 20th, by the SS. 'Duke of Devonshire,' for Brisbane direct, whence he will proceed on a collecting expedition to the Fiji Islands, in continuation of his studies of the Polynesian Ornis. Geographical variation is a strongly pronounced feature among the birds of these islands, and, although the ornithology has been made known to us in a highly interesting manner by the writings of Drs. Finsch and Hartlaub and of the late Mr. E. L. Layard, Mr. Wiglesworth hopes there may still be something to be found in the way of local races among the high mountains of the larger islands. Levuka will be his headquarters during the period of his visit.

Balæniceps *in East Africa.*—As already announced in some of the newspapers, Sir Harry Johnston has sent to the British Museum, in a collection recently received, a specimen of the Shoe-bill, or Whale-headed Stork as it is sometimes called

(***Balæniceps rex***). It was obtained by Mr. W. S. Doggett, Sir Harry's collector, at Entebbe (or Ntebe), on the north shore of Lake Victoria, on April the 22nd last. It is marked "Female: eye Naples-yellow." The specimen is now on exhibition in the entrance-hall of the British Museum, among the recent acquisitions.

The only previously known locality for this remarkable bird was the White Nile, where it was discovered by Mansfield Parkyns in 1849 (see P. Z. S. 1850, p. 1, Aves, pl. xxxv.). For a recent notice of its occurrence there see 'Ibis,' 1900, p. 692.

Ornithology at the Exposition Universelle.—We cannot say that the Exposition Universelle of 1900 contained much of special interest to the ornithologist. But there were many small series of birds exhibited in the sections. Amongst these may be specially noticed those in several of the sections of the division 'Colonies Françaises,' which was one of the most complete and best arranged departments of the 'Exposition.' The series of birds from New Caledonia seemed to be fairly complete, though the specimens were not scientifically labelled. The collection of Natural History objects from the Transvaal was also well arranged and labelled. It was selected, we believe, from the Pretoria Museum by Dr. Gunning, F.Z.S., who, we are pleased to learn, has been confirmed by the new British authorities in his post as Director of that Institution.

The Usage of the Generic Term Gavia.—American ornithologists have recently proposed to supersede the generic name '*Urinator*,' which has been hitherto used in the 'Check-list' for the Divers (*Colymbus*), by '*Gavia*' of Forster (Enchir. Hist. Nat. p. 38, 1788). Dr. Reichenow shows in a note on the subject (Orn. Mon. viii. p. 135) that this is not correct, because *Gavia* was employed in 1770 by Gmelin (Reise Russl. p. 152) as the generic name of ***Larus ichthyaëtus***, and must therefore be considered as a mere synonym of ***Larus***. It would seem by this, and by other similar cases, that even the most active disciples of the doctrine of Priority are not likely to succeed in their efforts to bring about perfect uniformity in Zoological Nomenclature: "*Quot homines, tot sententiæ*" must, we fear, remain the rule.

Supposed New British Birds.—In the 'Times' of December the 3rd there is the following note from Mr. Joseph P. Nunn, of Royston, Herts:—

"At Westgate-on-Sea, early in October last, I saw two specimens of the *Calliope camtschatkensis*, or Ruby-throated Warbler, in their wild state. I had a very fine opportunity of seeing their beautiful plumage, and through the kind assistance of Professor Newton I have since been able to examine some skins. I have not the slightest doubt as to their identity, and I believe it to be the first recorded instance of this Warbler having visited the British Isles."

Another straggler which has recently occurred in England is Baird's Sandpiper (*Tringa bairdi*) of North America. See Bull. B. O. C. xi. p. 27.

Prof. Newton's Royal Medal.—At the Anniversary Meeting of the Royal Society on November 30th last one of the Royal Medals was awarded to Prof. Alfred Newton, F.R.S. On delivering the medal the President, Lord Lister, spoke as follows:—

"Prof. Newton has devoted himself for the last fifty years to the study of Ornithology; and the 'Dictionary of Birds' may well be called the *résumé* of his labours. Prof. Newton's work is eminently critical—a model of careful and cautious criticism of everything pertaining to his favourite branch of science. The 'Dictionary of Birds' is the acknowledged standard work on Ornithology, the progress of which science in this country is due mainly to his critical, suggestive, and stimulating influence. His personal labours refer chiefly to historical, systematic, and faunistic questions. It is by his untiring efforts that the vexed question of nomenclature and synonymy has been practically settled and has been put on its present footing. He is also one of the leading authorities in the modern branch of zoo-geography, which owes some of the most important modifications and generalizations to him. Lastly, it is only fair to mention that he is one of the few zoologists among his contemporaries who, from the first, embraced the doctrine of evolution according to Darwinian principles."

The Birds of Yorkshire.—We are pleased to learn that arrangements have been made for the speedy resumption of the publication of Mr. W. Eagle Clarke's 'Birds of Yorkshire,' which work has partly appeared in the 'Transactions' of the Yorkshire Naturalists' Union, and "the continuation of which was interrupted by Mr. Clarke's leaving Yorkshire to settle in Edinburgh. Mr. Clarke and the Y.N.U. have now been able to secure the services of so able and competent an ornithologist as Mr. Thos. H. Nelson, M.B.O.U., of Redcar, to continue and complete the task."

XII.—*Obituary.*

Dr. John Anderson.—The death of our much esteemed friend, Dr. John Anderson, although he did little special work in Ornithology, must not pass unnoticed in the columns of 'The Ibis.' He was born in Edinburgh in 1833, and took the degree of Doctor of Medicine at the University of that city in 1861, receiving a gold medal for his thesis entitled "Observations in Zoology." His first post was that of Professor of Natural Science at the Free Church College in his native capital; but in 1864 he resigned that office and proceeded to India, having been offered the headship of a new Museum planned by the Supreme Government in order to receive the collections of the Asiatic Society of Bengal. In 1865 Dr. Anderson was appointed Superintendent of the new Museum at Calcutta; and two or three years later was also selected for the Chair of Comparative Anatomy in the Medical College of that city. Calcutta, therefore, became his headquarters for the whole of his professional career, but he took part in several well-known missions to outlying parts of the Indian Empire. In 1868 he accompanied, as scientific officer, an expedition through Burmah into Western China, and again in 1874 he was sent in a similar capacity on a second journey of the same character, with instructions to proceed *viâ* Bhamo to Shanghai if possible. On this occasion, however, the company was attacked by the Chinese, and was obliged to retreat. The zoological results of these two expeditions were described by Dr. Anderson in a well-known quarto volume, published in London in 1878. A third, in which Dr. Anderson took a prominent part, was that sent by the Trustees of the Indian Museum in 1881 to the coasts of Lower Burmah, to investigate the zoology of the Mergui Archipelago. A list of the birds collected on that occasion was published by Dr. Anderson in the Journal of the Linnean Society (Zool. vol. xxi. p. 136).

In 1887, after twenty-three years' service under the Indian Government, Dr. Anderson returned home, and settled in South Kensington, where he devoted himself entirely to zoological work, and was a well-known attendant at the Royal, Geographical, Linnean, and Zoological Societies. Of the last-named he was for many years one of the Vice-Presidents. Being in delicate health, Dr. Anderson usually passed his winters in Egypt, and devoted his energies mainly to the exploration of the Fauna of that country. In 1898 he published a splendid volume on its Herpetology, and up to the time of his death was busily engaged on a corresponding work on the Egyptian Mammals. Dr. Anderson died at Buxton on the 15th of August last, at the age of 66, after a short illness. Besides the works above mentioned, he published in 1876 an excellent essay on the osteology and pterylosis of the Spoon-billed Sandpiper (*Eurynorhynchus pygmæus*).

The veteran Ornithologist Dr. GUSTAV HARTLAUB of Bremen (one of our Honorary Members since 1860) died at his residence in that city on the 20th of November last, at the mature age of 87. We propose to defer our remarks on his life and work until the next number.

THE IBIS.

EIGHTH SERIES.

No. II. APRIL 1901.

XIII.—*On some Collections of Birds from the Protectorate of British Central Africa, received in* 1899 *and* 1900. By Captain G. E. Shelley, F.Z.S. *With an Introduction by* P. L. Sclater, M.A., Ph.D., F.R.S.

Part I.—Introductory Notes. By P. L. Sclater.

Captain Shelley, on the present, as on many former occasions, has kindly undertaken the task of naming and describing the specimens contained in several collections of birds from British Central Africa which have been transmitted to me in 1899 and 1900 by Mr. Alfred Sharpe, C.B., H.B.M. Commissioner, and by Lt.-Col. W. H. Manning, H.B.M. Deputy Commissioner, to whose united zeal and energy in continuing the good work projected and commenced by Sir Harry Johnston I have great pleasure in bearing testimony.

Mr. Alfred Sharpe, writing from Zomba, B.C.A., on January 18th, 1900, describes the series sent on that occasion as follows. It contains:—

(*a*) My own collection of birds from Namaramba Lake, which lies N.E. of Zomba, some 70 miles distant. (Namaramba is at the source of the Lajenda River, and is about 1700 feet above sea-level.)

(*b*) My own collection from the east side of Lake Mweru, 3000 feet above sea-level.
(*c*) Some Milanje specimens secured by our hunters.
(*d*) Some from Liwonde on the Upper Shiré River, about 1500 feet above the sea-level, from the same source.

Mr. J. McClounie, Chief of the Scientific Staff at Zomba, who visited England last year, has kindly supplied me with the following notes on the principal localities in which the specimens were obtained:—

Buwa or *Bua River*.—Kotakota is near or at the mouth of the Bua, which is a large river and drains a considerable tract of country from the Anglo-Portuguese western boundary. Mr. Sharpe, I think, went in at Kotakota and travelled south-west and south to the Angoniland country. I have only been to the upper reaches of the Bua, at the 14th parallel of South latitude, which point I fixed in 1896. Specimens from this district are likely to be from latitudes 13° to 13° 30′.

Chikala Mountain.—Mount Chikala lies about 24 miles to the E.N.E. of Zomba, on the shores of Lake Shirwa. The lake itself is 1700 feet above the sea-level, and the top of Chikala (by aneroid) comes near 5548 feet. If I remember rightly, numerous aquatic birds are to be found there, while on the top and in the ravines many warblers may be heard. Though not rising quite so high as Zomba, and not so extensive, it is practically the last hill of note in our territory of the chain of hills running north from Zomba.

Chiuta Lake.—Lake Chiuta is further east than Mount Chikala, but also more to the north. This small lake is considered by most people to be a continuation of Lake Shirwa, as it is separated from it by only a few miles of land, evidently composed of silt. There are many birds to be had there, as well as other game, amongst which the Gnu is abundant. It is on the Anglo-Portuguese boundary.

Dedza or *Deza* is a mountain in Central Angoniland on the Portuguese frontier, about 7000 feet in altitude.

Ikawa.—Ikawa, on the Tanganyika plateau, near Fife, is said to be rich in birds.

Kachinda is in Angoniland, near the S.W. corner of Lake Nyasa.

The *Karungwesi* or *Kalungwizi* is a river running into the eastern side of Lake Mweru.

Kikomba or *Kuikomba* is on the Nyasa-Tanganyika plateau, halfway between Nyasa and Tanganyika.

Katunga is on the Lower Shiré River.

Liwonde (lat. 15° 2′ S., long. 35° 16′ E.).—Liwonde is a Government Station on the River Shiré, north of Zomba, and probably about 1000 ft. above the sea-level. It is in the midst of the Shiré plain, and is at all times damp and moist, the excessive heat being sometimes over 110° Fahr. in the shade in November, December, and January. Most of the specimens were collected by our hunters, but some by Mr. J. B. Yule. Birds and mammals of all kinds are to be found there. Aquatic birds are most prominent, and are chiefly seen from the steamer plying up and down this part of the river, as, owing to the extremely tall grass, it is very difficult to go through the bush.

Mambwe and *Mbara* are native villages on the plain between Zomba and Milanji. They are situated along the banks of the River Palombe, which runs into Lake Shirwa some 10 miles or so from Chikala. As along most other streams of the plain, birds are numerous where the shade is dense and they can get shelter from the sun, which in October and the following two months is very hot.

Mlange or *Milanji* is a well-known mountain in about lat. 15° 50′ S., long. 35° 45′ E.—All of the specimens from this locality are from the Tutchila plateau (altitude between 4000 and 7000 ft.), and were mostly obtained in the cedar-forests that abound on it. There are numerous deep ravines which abound with animal life, principally birds, although a few bush-bucks have recently taken up their quarters in the cedar-forests. Black monkeys are frequently seen in the woods, and sometimes the deep tones of a leopard are heard.

Mtonga is a country on the west side of Lake Nyasa, about halfway up.

Mwero Lake.—Lake Mwero or Mweru is to the west of Lake Tanganyika, and some distance from Abercorn, which is the capital of the Nyika plateau.

Namaramba Lake.—This lake is N.E. of Lake Chiuta, in Portuguese territory. It is marked Lake Amaramba in some maps.

Namasi or *Namadzi* (from "madzi" = water) is a district lying between Zomba and Blantyre. It is mostly undulating country, with numerous small streams. Although there is one that bears the same name, yet there are many smaller streams in the district, flowing towards Lake Shirwa, which are superior to it, as they do not dry up so soon as the Namadzi. On the Shirwa plain the Namadzi is more often found with a dry bed than with water in it. The specimens labelled thus are probably from the lower reaches, near to the Palombe.

Palombe River.—This river flows into Lake Shirwa towards its southern end.

Zomba (lat. 15° 22′ S., long. 35° 17′ 45″ E.).—The specimens from this place are, for the most part, captured along the southern slopes. Birds are very numerous; bush-bucks are common on the top of the mountain, as also are wild dogs, whose frequent visits to the plateau are to be deplored, as they play dreadful havoc with the bush-bucks.

The series submitted to Capt. Shelley on this occasion contained about 285 specimens, which he refers to 140 species. Although none of these are new to science, several (as will be seen by the notes) are new to the Avifauna of Nyasaland.

Of the whole series, 222 specimens have been selected for the British Museum, and the remainder will be sent to the South-African Museum, Cape Town.

Capt. Shelley informs me that, including the present additions, 471 species of birds are now known from the Protectorate of British Central Africa.

Part II.—LIST OF THE SPECIES WITH LOCALITIES. By G. E. SHELLEY.

[Explanatory notes on species marked with an asterisk are given in Part III.]

Name.	No. in Shelley's B. of Afr.	Localities.
*1. *Parus niger*	117	Liwonde.
2. —— *parvirostris*	124·6	Katunga.
*3. *Motacilla flava*	150	Chiuta.
4. *Anthus rufulus*	165	Milanji and Namaramba.
5. *Macronyx croceus*	170	Namaramba. [Karungwesi.
6. *Passer diffusus*	208	Kachinda (in Angoniland) and
7. *Serinus icterus*	285	Palombe.
8. *Hypochera funerea*	309	Dedza in Angoniland.
9. *Vidua principalis*	312	Dedza.
10. *Coliopasser albonotatus*	321	Dedza.
11. —— *macrurus*	324	Dedza.
12. *Urobrachya axillaris*	328	Karungwesi.
13. *Pyromelana flammiceps*	338	Angoniland.
14. *Quelea quelea*	350	Mwero.
15. *Estrilda subflava*	404	Mwero and Karungwesi.
*16. —— *poliogastra*	418	Karungwesi. [and Mwero.
17. *Hypargus niveiguttatus*	444	Mtonga in Angoniland, Karungwesi
*18. *Anaplectes erythrogenys*	476·5	Chiuta.
19. *Sycobrotus stictifrons*	504	Milanji and Angoniland.
20. *Hyphanturgus ocularius*	520	Kikomba and Liwonde.
21. *Xanthophilus xanthopterus*	529	Angoniland.
22. —— *xanthops*	538	Palombe.
*23. *Hyphantornis shelleyi*	543	Dedza.
24. *Oriolus notatus*	570	Ikawa, Kikomba, and Mambwe.
25. —— *larvatus*	572	Mtonga. [Mbara.
26. *Pholidauges verreauxi*	581	Ikawa, Karungwesi, Kikomba, and
27. *Lamprotornis mevesi*	590	Dedza and Liwonde.
28. *Lamprocolius sycobius*	600	Chikala.
29. *Amydrus morio*	616	Milanji.
30. *Dilophus carunculatus*	630	Liwonde.
31. *Dicrurus afer*	646	Liwonde and Milanji.
32. *Prionops talacoma*	666	Liwonde and Buwa.
33. *Sigmodus tricolor*	672	Mtonga country.
34. *Campophaga niger*	675	Chiuta and Karungwesi.
35. *Graucalus pectoralis*	681	Mtonga.
36. *Fiscus collaris*	693	Dedza.
37. *Enneoctonus collurio*	709	Chiuta, Karungwesi, and Mbara.
38. *Laniarius mosambicus*	723	Chikala, Ikawa, Karungwesi, and Kikomba.
39. *Dryoscopus cubla*	742	Dedza, Karungwesi, and Milanji.
40. *Bocagia anchietæ*	750	Karungwesi and Kikomba.
41. *Telephonus senegalus*	751	Karungwesi.
42. *Malaconotus sulphureipectus*	769	Chiuta and Karungwesi.
*43. —— *starki*	778	Karungwesi.
*44. *Crateropus tanganjicæ*	793	Mambwe.
45. —— *kirki*	795	Liwonde.

Name.	No. in Shelley's B. of Afr.	Localities.
*46. *Crateropus hartlaubi*	806	Karungwesi and Kikomba.
47. *Criniger fusciceps*	880	Liwonde and Milanji.
48. *Chlorocichla occidentalis*	886	Liwonde.
49. *Phyllostrephus strepitans*	896	Karungwesi and Palombe.
50. —— *cerviniventris*	901	Likangala in Angoniland.
51. *Cisticola ruficapilla*	1039	Milanji.
*52. —— *erythrops*	1052	Karungwesi.
53. *Cichladusa arcuata*	1160	Kachinda in Angoniland and Kikomba.
54. *Cossypha natalensis*	1164	Liwonde.
55. —— *caffra*	1165	Milanji.
56. —— *heuglini*	1171	Chikala.
57. *Bessonornis modesta*	1182·5	Dedza.
58. *Pratincola torquata*	1192	Kachinda and Karungwesi.
59. *Turdus stormsi*	1225	Mbara.
60. *Saxicola livingstonei*	1255	Liwonde.
61. *Thamnolæa arnotti*	1283	Mambwe and Mweru.
62. *Muscicapa grisola*	1308	Dedza.
63. *Platystira peltata*	1357	Milanji.
64. *Hirundo rustica*	1413	Angoniland.
65. —— *monteiri*	1436	Mweru.
*66. *Psalidoprocne orientalis*	..	Zomba.
*67. —— *albiceps*	1448	Karungwesi and Mambwe.
*68. *Cypselus alfredi*	..	Mbara.
69. *Melittophagus meridionalis*	1524	Liwonde, Ikawa.
70. *Merops persicus*	1537	Dedza and Likangala.
71. —— *natalensis*	1543	Chikala, Liwonde.
72. *Rhinopomastes cyanomelas*	1559	Lake Mweru.
73. *Bycanistes bucrinator*	1566	Angoniland.
74. *Lophoceros melanoleucus*	1579	Karungwesi.
75. —— *epirhinus*	1582	Angoniland and Liwonde.
76. *Ceryle rudis*	1599	Milanji and Namaramba.
77. *Corythornis cyanostigma*	1606	Liwonde, Mbara, and Lake Mweru.
*78. *Halcyon hyacinthinus*	1616	Dedza and Milanji.
79. —— *cyanoleuca*	1622	Chiuta.
*80. *Colius affinis*	1635	Dedza.
81. *Gymnoschizorhis leopoldi*	1666	Lake Mweru.
82. *Ceuthmochares australis*	1681	Milanji.
83. *Centropus nigrorufus*	1683	Angoniland.
84. *Coccystes glandarius*	1692	Karungwesi and Mweru.
85. —— *cafer*	1696	Karungwesi.
*86. *Cuculus canorus*	1702	Lake Mweru.
87. *Chrysococcyx klaasi*	1711	Karungwesi.
88. *Indicator major*	1714	Lake Mweru.
89. *Smilorhis sowerbyi*	1759·5	Dedza.
*90. *Trachyphonus cafer*	1783	Ikawa, Karungwesi, and Lake Mweru.
91. *Campothera caillaudi*	1811	Kachinda.
92. *Vinago delalandi*	1854	Liwonde.
93. *Columba arquatrix*	1861	Milanji.
94. *Haplopelia johnstoni*	1871	Milanji.

Name.	No. in Shelley's B. of Afr.	Localities.
95. *Pœocephalus fuscicapillus*	1906	Liwonde.
96. *Glaucidium capense*	1950	Lake Mweru.
*97. *Scops capensis*	1958	Mambwe.
98. *Bubo lacteus*	1967	Karungwesi.
99. *Elanus cæruleus*	2009	Liwonde.
100. *Haliaëtus vocifer*	2014	Dedza and Kachinda.
101. *Helotarsus ecaudatus*	2016	Dedza and Liwonde.
102. *Nisaëtus spilogaster*	2026	Zomba.
103. *Lophoaëtus occipitalis*	2030	Angoniland.
104. *Circaëtus cinerascens*	2039	Liwonde.
105. *Accipiter melanoleucus*	2074	Mtonga.
106. *Polyboroides typicus*	2084	Dedza.
107. *Herodias ralloides*	2110	Namaramba.
108. *Butorides atricapilla*	2126	Lake Mweru.
109. *Ardetta podicipes*	2132	Lake Mweru.
110. *Tantalus ibis*	2145	Angoniland.
111. *Plotus rufus*	2154	Lake Mweru.
112. *Hydrochelidon leucoptera*	2167	Angoniland.
113. *Rhynchops flavirostris*	2195	Angoniland.
114. *Larus cirrhocephalus*	2205	Chikala.
115. *Nettapus auritus*	2257	Kachinda and Namaramba.
116. *Dendrocycna fulva*	2260	Angoniland.
117. *Chenalopex ægyptiaca*	2261	Angoniland and Mweru.
118. *Anas undulata*	2266	Angoniland.
*119. *Querquedula capensis*	2272	Mbara.
120. —— *punctata*	2273	Namaramba and Mbara.
121. *Pœcilonetta erythrorhyncha*	2275	Liwonde.
122. *Thalassiornis leuconota*	2284	Namaramba.
123. *Podicipes capensis*	2288	Mbara.
*124. *Fulica cristata*	2295	Mbara.
125. *Porphyrio porphyrio*	2296	Namaramba.
126. *Limnocorax niger*	2312	Karungwesi and Mbara.
127. *Coturnix delegorguei*	2332	Angoniland, Karungwesi, and [Mweru.
128. *Francolinus johnstoni*	2379	Milanji.
129. *Phyllopezus africana*	2441	Karungwesi.
130. *Microparra capensis*	2443	Namaramba.
131. *Hoplopterus speciosus*	2452	Karungwesi.
132. *Stephanibyx coronatus*	2453	Angoniland, Chiuta, and Mweru.
133. —— *inornatus*	2455	Chikala.
134. *Vanellus leucopterus*	2458	Namaramba.
*135. *Totanus ochropus*	2492	Milanji.
136. —— *hypoleucus*	2494	Karungwesi and Mbara.
137. *Gallinago nigripennis*	2498	Lake Mweru.
138. *Himantopus himantopus*	2503	Mbara and Lake Mweru.
139. *Œdicnemus vermiculatus*	2510	Lake Mweru.
*140. *Glareola nuchalis*	2530	Lake Mweru and Karungwesi.

Part III.—NOTES ON SOME OF THE SPECIES.

By G. E. SHELLEY.

1. PARUS NIGER Vieill.

Parus niger Shelley, B. Afr. ii. p. 232 (1900).

The collection contains an adult pair of this species from Liwonde, which is the most northern range known to me for it. It is apparently replaced in German East Africa, north of Nyasaland, by *P. fuelleborni* Reichen. (Orn. Monatsb. 1900, p. 5). The Tits are well represented in Nyasaland, and the following key may serve to identify the seven forms found within the British Central-African Protectorate:—

a. Bill stout and rather blunt; crown and most of the head black	*Parus.*
a^1. Entire head black; a large amount of white on the wings.	
a^2. Breast black or deep grey.	
a^3. Dark parts glossy blue-black; no white on under tail-coverts	*insignis.*
b^3. Body never blue-black, unless there are white margins to under tail-coverts.	
a^4. Crown glossed with blue; inside of mouth black	*niger.*
b^4. Crown glossed with green; inside of mouth bright yellow	*xanthostomus.*
b^2. Breast cinnamon	*masukuensis.*
c^2. Breast buff	*pallidiventris.*
b^1. Head with a patch of white	*parvirostris.*
b. Bill wedge-shaped and very sharply pointed. Very tiny bird: above mouse-colour; throat white; abdomen tawny buff	*Ægithalus caroli.*

I have nothing to add to what I have written regarding these Tits (B. Afr. ii.) except that the *P. afer* of Sclater, P. Z. S. 1900, p. 2, may be referred to the small-billed subspecies *P. parvirostris.*

3. MOTACILLA FLAVA Linn.

Motacilla cinereicapilla Shelley, Ibis, 1899, p. 282, Zomba.

I here include the name *M. flava* for the first time in the Avifauna of Nyasaland. The specimen in this collection is immature, like that previously recorded from Zomba as *M. cinereicapilla.* They probably both belong to the same subspecies, but in such a state of plumage it is not possible to decide positively to which of the allied forms they should be referred.

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* The numbers refer to those of the species in Part II.

16. ESTRILDA POLIOGASTRA (Reichen.).

Habropyga poliogastra Reichen. J. f. O. 1886, p. 121, Inhambani.

Estrilda incana (nec Sundev.) Shelley, Ibis, 1899, p. 368, Tanganyika plateau.

The specmien from the Tanganyika plateau was in such bad condition that I referred it to *E. incana,* being unable to see in what way it differed from Natal birds; but with the second example before me I consider Dr. Reichenow justified in recognising this subspecies. It differs from *E. perreini* and *E. incana* in the red of the rump and upper tail-coverts being duller and darker, and is intermediate between these two in the greyish-black colouring of the abdomen and under tail-coverts.

The grey group of *Estrildæ* comprises about six nearly allied forms, all apparently very local: *E. cærulescens* from Senegambia; *E. thomensis* probably confined to the island of St. Thomas; *E. perreini* from the Lower Congo; *E. cinereovinacea* from Benguela; *E. incana* from Natal; while the present species replaces its allies in South-eastern Tropical Africa, from Inhambani to the Tanganyika plateau.

18. ANAPLECTES ERYTHROGENYS.

Calyphantria erythrogenys Fisch. & Reichen. J. f. O. 1884, p. 181.

Anaplectes rufigena Shelley, B. Afr. ii. p. 341 (1900).

This species is very closely allied to *A. melanotis,* from which it differs in the cheeks being red instead of black. I made the present specimen the type of a new species (*A. rufigena*), overlooking the fact that the name *Calyphantria erythrogenys* had been applied to it. It is the only representative of this form in the British Museum. In Nyasaland there is a third species of the genus, *A. gurneyi*, easily distinguished by having the edges of the quills yellow instead of red.

23. Hyphantornis shelleyi Sharpe.

Mr. Alfred Sharpe sends examples of this species from Katunga and Dedza—its most northern-known range. It is probably not uncommon in Southern Nyasaland, for there are six specimens in the British Museum from Tete on the Zambesi.

43. Malaconotus starki (Scl.).

Malaconotus blanchoti (nec Steph.) Shelley, B. Afr. i. no. 778.

Laniarius starki Scl. Ibis, 1901, p. 153.

The name *M. blanchoti* Steph. does not apply to this species, for the type of the former, which is the same as that of "*La Pie-grièche Blanchot*" of Levaillant, was obtained by Blanchot in Senegal and belongs to *M. polionotus* (Licht.). Mr. W. L. Sclater has proposed to call it *M. starki*, in memory of the late Dr. A. C. Stark, author of the first volume of the 'Birds of South Africa.'

44. Crateropus tanganjicæ Reichen. J. f. O. 1886, p. 115, pl. 3. fig. 1.

Mambwe is the most southern range known for this rare and apparently very local species. I believe that this is the first specimen of it that has ever arrived in England. It is closely allied to *C. kirki*, from which it differs chiefly in the great amount of black on the head.

46. Crateropus hartlaubi Bocage.

The occurrence of this species at Karungwesi and Kikomba greatly extends its known range. It is represented in the British Museum by specimens from Benguela and the Cunene River, and by one obtained by Dr. Bradshaw, without any locality on the label of the specimen, which, however, was probably procured in the country between the Orange and Zambesi Rivers.

52. Cisticola erythrops (Hartl.).

This is the most southern range known to me for this species. It has been recorded in German East Africa from the Arusha country, and ranges through West Africa from the Congo to Senegambia.

On placing this skin between the series of *C. cinerascens* and *C. erythrops* in the British Museum I observed that it formed a good connecting link.

66. PSALIDOPROCNE ORIENTALIS.

Psalidoprocne petiti orientalis Reichen. J. f. O. 1889, p. 277, Usambara.

Psalidoprocne percivali Grant, B. O. C. viii. p. lv. (1899), Ruo R.

I enter this species in the present list because there is a specimen in the British Museum procured by Mr. Alexander Whyte at Zomba in January 1893. I did not record it at the time, as I hoped to see more specimens from Nyasaland. *P. antinorii* from North-east Africa was the nearest ally known to me, for I was unable to recognise it as *P. petiti orientalis* Reichen. from the original description, and I forgot all about it until Mr. Ogilvie Grant described the species, from a brighter specimen, as *P. percivali*. On referring to the key to the Swallows given by Dr. Reichenow, Vög. O.-Afr. p. 144, there can be no doubt that the oldest name for the species is *P. orientalis*.

Besides the two specimens above mentioned there is another in the British Museum labelled "♂, 20.9.98 Cheringana district, Mosambique (H. S. H. Cavendish)," so that the species ranges from 5° to 20° S. lat. To the north, in British East Africa, there is found *P. orientalis* (nec Reichen.), Sharpe, Ibis, 1892, p. 306, readily distinguished from the true *P. orientalis* by having the axillaries and under wing-coverts pale brown, and I imagined that this would prove to be a new species with little gloss on the plumage like the young bird from Taveta—*P. petiti* (nec Sharpe & Bouvier), Shelley, P. Z. S. 1889, p. 359; but I find Mr. Jackson's birds, nine in number, from Mount Elgon, the Ravine, Nandi, and Mau to be identical with examples of the species from the Knysna and Natal, which is also represented in the British

Museum by one from the Transvaal and one from Mamboio (P. Z. S. 1882, p. 306), therefore *P. holomelæna* should occur in British East Africa; and the following key may be useful:—

a. No pure white on the plumage.
  a^1. Tail square .... *nitens*.
  b^1. Tail strongly forked.
    a^2. General plumage black glossed with green; axillaries and under wing-coverts dusky drab.
      a^3. Gloss more golden green. Wing 3·65 to 3·8 in. *obscura*.
      b^3. Gloss more bluish green. Wing 3·8 in. .... *chalybæa*.
      c^3. Gloss more olive-green. Wing 4·3 to 4·7 in... *holomelæna*.
    b^2. General plumage bronze-brown; under wing-coverts scarcely paler. Wing 4·25 in. .... *fuliginosa*.
    c^2. General plumage sooty brown; axillaries and under wing-coverts brownish white .... *petiti*.
b. Pure white confined to the entire axillaries and under wing-coverts.
  c^1. General plumage browner and less strongly glossed.
    d^2. Glossed with bronze-brown .... *antinorii*.
    e^2. Glossed with green .... *orientalis*.
  d^1. General plumage blacker, with a very strong gloss.
    f^2. Glossed with green .... *blanfordi*.
    g^2. Glossed with blue .... *pristoptera*.
c. White confined to head, which is mostly white in adults .... *albiceps*.

67. Psalidoprocne albiceps Scl.

This is the first time this species has been recorded from so far south as Nyasaland. It ranges northward to Wadelai on the Upper White Nile and the Ulu Mountains in Ukambani.

68. Cypselus alfredi Shelley.

Cypselus alfredi Shelley, B. Afr. ii. p. 345 (1900).

Nearly allied to *C. æquatorialis*, but slightly larger and darker. General plumage blackish brown, with a slight greenish gloss, fading into white on the chin and upper throat; feathers of the back with almost obsolete pale edges; crop and under surface of body with indistinct narrow white edges to the feathers, inclining to spots on the abdomen and sides of the body; axillaries and some of the larger under wing-coverts with narrow white terminal edges; outer under wing-coverts edged with buff, giving them a regular scaled appearance. Total length 10·2 inches; culmen 0·4; wing 7·9; tail, outer feathers 3·5, centre feathers 2·4; tarsus 0·6.

78. HALCYON HYACINTHINUS Reichen.

Halcyon hyacinthinus Reichen. J. f. O. 1900, p. 216.

In 1896, when I published my list of African birds, I recognised only two species belonging to this group, *H. semicæruleus* Forskål and *H. pallidiventris* Cab. The latter name cannot rightly supplant that of *H. swainsoni* Smith, S. Afr. Quart. Journ. 1834, vol. ii. p. 143, which certainly refers to the pale form that inhabits the Cape Colony district, but is very indifferently described.

If we recognise *C. erythrorhynchus* Gould from the Cape Verde Islands as a subspecies of *H. semicæruleus*, we should be equally bound to regard *H. hyacinthinus* Reichen. as a subspecies of *H. swainsoni*, extending over the north-eastern range of that species northward from Mashonaland. The sole characters I can find for these subspecies may be summed up in the following key:—

a. Abdomen and under wing-coverts deep chestnut	*semicæruleus*.
a^1. Average size of bill slightly smaller; head and neck paler	Subsp. *erythrorhynchus*.
b^1. Average size of bill slightly larger; head and neck darker	Subsp. *semicæruleus*.
b. Abdomen and under wing-coverts orange-buff	*swainsoni*.
c^1. Above darker; mantle nearly jet-black; a rather deeper shade on the glossy blue parts	Subsp. *hyacinthinus*.
d^1. Above paler, especially the scapulars	Subsp. *swainsoni*.

In the British Museum there are—♂, 19.12.84 Salisbury, and a good series from the Zambesi and Nyasa district belonging to *H. swainsoni hyacinthinus*: while ♀, 21.9.83 Potchefstroom; ♀? Gurnah (Oates); ♀, 22.12.65 Ondonga; and one of Monteiro's specimens from Benguela, belong to typical *H. swainsoni*. One of Jameson's specimens, labelled "Umvuli R., ♀, 2.10.80," is intermediate between these two subspecies.

80. Colius affinis Shelley.

Colius striatus (nec Gm.) Shelley, Ibis, 1897, p. 545, Nyika, Ukala Bay and Fort Hill; 1898, p. 555, Karonga, Nkata.

Colius affinis Shelley, Ibis, 1899, p. 276, Ikawa and Fife.

The specimens from the above-mentioned localities belong to *C. affinis*, as well as two in the present collection from Dedza in Angoniland; but one of the latter has not got the characteristic pale mark on the upper mandible, which is entirely black as in *C. striatus*. Possibly this may be a hybrid, as Mr. Alexander Whyte procured at Zomba, some 50 miles south, a typical example of *C. striatus*.

Owing to *Sigmodus tricolor* and *S. graculinus* apparently interbreeding at the Pangani River, I had considered these two forms to belong to one species (see P. Z. S. 1881, p. 581); Mr. Oscar Neumann, in his article on the genus *Sigmodus* (Orn. Monatsb. 1899, p. 91), takes a different view of this matter, and probably a more correct one than I did in 1881, when subspecies were not so readily admitted.

86. Cuculus canorus Linn.

This collection contains the first examples of the Common Cuckoo we have received from Nyasaland. They are two immature birds in the rufous plumage, but one of them is mottled with apparently fresh grey feathers as if it was about to discard the rufous for the ordinary plumage.

90. Trachyphonus cafer (Vieill.).

These specimens come from the most northern locality known for typical examples of this species. It ranges south into Zululand and Natal, the latter country being its most western limit. In German East Africa it is replaced by a nearly allied subspecies, *T. suahelicus* Reichen.

97. Scops capensis Smith.

This Owl is distributed over the whole of South Africa, but it is a rare bird in collections. This is the first time it has been recorded from Nyasaland.

119. Querquedula capensis (Gm.).

Although this species has not been previously recorded from Nyasaland, it is distributed over the whole of South Africa and Eastern Africa up to Abyssinia.

124. Fulica cristata Gm.

The Crested Coot, here recorded from Nyasaland for the first time, ranges over South, East, and North Africa into Madagascar and Southern Europe.

135. Totanus ochropus (Linn.).

The Green Sandpiper, though here recorded for the first time from Nyasaland, is generally distributed throughout Africa.

140. Glareola nuchalis Gray.

Glareola nuchalis Reichen. Vög. Afr. i. p. 147 (1900).

This species is new to Nyasaland, but was previously known to range from Camaroons eastward to Southern Abyssinia, and southward to the Zambesi.

It is represented in the British Museum by the types of *G. nuchalis* and *G emini* from the White Nile and by specimens labelled: "Didesa R., Abyssinia, ♀, 21.3.99 (Lord Lovat)," and "Between Zurubo and Lufue R., ♀, 9.11.99 (Boyd Alexander)."

Dr. Reichenow (*l. c.*) informs us that *G. marchei* Oust., 1877, also belongs to this species and is not, as I had imagined, the oldest name (provided with a description) for the nearly allied form from the Niger and Liberia, the *G. nuchalis liberiæ* Schl., 1881.

Appendix. By G. E. Shelley.

I may here add a few notes on a small collection of birds from the Shiré district, made for Lt.-Col. W. H. Manning, H.B.M. Deputy Commissioner for British Central Africa, by hunters belonging to the Scientific Department at Zomba, attached to the Anglo-Portuguese Boundary Commission who are now engaged in settling the eastern frontier of the British Central African Protectorate.

The following 16 species are represented in this collection:—

1. Oriolus larvatus (Shelley, Cat. p. 41).
Banda, 14° 45′ S. lat., 34° 53′ E. long. Native name: "*Hisundambawala.*"

2. Pholidauges verreauxi (Shelley, Cat. p. 42).
Limawasi, 14° 49′ 30″ S. lat., 34° 57′ E. long.

3. Lamprotornis mevesi (Shelley, Cat. p. 42).
Shiré R., 15° 3′ 10″ S. lat., 31° 8′ E. long.

4. Lamprocolius sycobius (Shelley, Cat. p. 43).
Shiré R. Native name: "*Likwirine.*"

5. Fiscus collaris (Shelley, Cat. p. 51).
Fort Mlangeni, 14° 41′ 10″ S. lat., 34° 37′ 20″ E. long. Native name: "*Mwiyo.*"

6. Coracias caudatus (Shelley, Cat. p. 109).
Shiré R., 15° 3′ 10″ S. lat. Bill black, legs yellow.

7. Merops natalensis (Shelley, Cat. p. 111).
Shiré R. Bill black; legs slaty blue.

8. Irrisor viridis (Shelley, Cat. p. 112).
Shiré R. Bill and legs red.

9. Colius affinis (Shelley, Cat. p. 118).
Fort Mlangeni. Legs red. Native name: "*Pasapanza.*"

10. Vinago delalandei (Shelley, Cat. p. 134).
Banda. Bill white; legs red. Native name: "*Nyandi.*"

11. Tympanistria tympanistria (Shelley, Cat. p. 138).
Sunji, 14° 41′ S. lat., 34° 50′ E. long. Native name: "*Fatukotuko.*"

12. Pœocephalus fuscicapillus (Shelley, Cat. p. 139).
Limauwasi and Banda. Native name: "*Ngwi.*"

13. Agapornis lilianæ Shelley, Ibis, 1894, p. 466, pl. xii. (Shelley, Cat. p. 141).
Limawasi. Bill red; legs slaty. Native name: "*Chepuli.*"
This pretty little Love-bird is apparently rare as well as very local, for in the sixteen large collections of birds made in British Central Africa, this is only the second time that examples of the present species have been included. All

the known specimens have been met with in the Upper Shiré district, except those procured by Capt. Alexander on the Zambesi (see Ibis, 1900, p. 431).

14. GLAUCIDIUM PERLATUM (Shelley, Cat. p. 142).
Shiré R.; ♂ ♀, Banda. Native names: "*Matawese*" and "*Kaungululu.*"

15. BUBO LACTEUS (Shelley, Cat. p. 144).
Banda. Native name: "*Linjichi.*"

16. ASTURINULA MONOGRAMMICA (Shelley, Cat. p. 151).
Shiré R.

XIV.—*On Moult and Alleged Colour-change in Birds.*

By WITMER STONE.

THE article by Mr. Bonhote, which appeared in last year's volume of this Journal*, leads me to make some reply to his criticisms of my paper on "Moult" (published in the 'Proceedings of the Philadelphia Academy,' 1896), though it seems questionable whether any further discussion will result in a better understanding of the phenomena of plumage-change, since the advocates of both sides hold so tenaciously to their own views.

Rather than repeat in detail arguments that have already been fully expanded, I desire to point out some facts in connexion with the study, and to endeavour to show what has been *proven* by recent investigations.

It will be understood at the outset that, with Dr. J. A. Allen, Dr. J. Dwight, Jr., Mr. F. M. Chapman, and most other American ornithologists, I maintain that all colour-changes in bird-plumage are produced either by actual moult or by abrasion of the tips, and that there is no change of pigment in the feathers themselves.

To consider in the first place the attitude of those who differ from us, we note that the advocates of direct change of pigment have been forced to abandon their earlier standpoint—that most changes of plumage in spring-time were effected in this way—for the much narrower claim that the change occurs in some feathers of some individuals of certain species.

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* See 'Ibis,' 1900, p. 464.

On the other hand it has now been *demonstrated* that at least many (and apparently all) individuals of every species of bird in Eastern North America which undergoes a spring change of plumage accomplish that change by a moult. If the same thing is not true of European birds, we have certainly a strange state of affairs!

Now let us consider the manner in which investigations have been carried out. It should be thoroughly understood, in the first place, that the study of moult or plumage-change is one of the most difficult branches of ornithology, and requires much pains and constant care to prevent our jumping to conclusions not warranted by the evidence.

The papers so far published against the colour-change theory by Mr. Chapman, Dr. Dwight, and myself are based upon a careful examination of thousands of specimens, many of them in various stages of moult; while the numbers and data of the individual skins upon which our conclusions are based are recorded, together with the actual condition of the feathers.

Mr. Bonhote's paper is notably lacking in these respects, and he gives us his conclusions without placing the evidence before us. For example he states " From the head of *Larus ridibundus* I have taken at the same time new brown feathers and old feathers *in the process of change*" [italics mine]. What he really took were no doubt particoloured feathers *which he thought were changing*, but which we on the other hand think *were always particoloured* from the time they broke from the sheath, and would remain so until they were shed.

From this example it will be seen that the main difference between us is *a difference of interpretation* of what we see in the specimens examined.

Now as to what has been proven. I claim that any one who carefully studies the articles by Messrs. Chapman, Allen, Dwight, and myself must admit that we have proved that certain individuals (we claim by inference *all* individuals) of the many species that we have examined accomplish the spring change of plumage by a moult, and that the feathers of the nuptial dress which are alleged to have undergone a change of pigment burst from the pin-feather sheaths exactly the same, so far as colour is concerned, as they are in the breeding-bird. Furthermore, did opportunity offer to demonstrate our views personally to our critics with our series of specimens, I am sanguine enough to think that they would agree with us. One of the principal difficulties attaching to the study of moult is the lack of satisfactory material, and this I think has in many cases led Mr. Bonhote and others astray. Few collectors have preserved moulting birds, because they make such ragged specimens; and in my own experience it has often happened that while I have had scores of examples at hand, not one of them showed traces of the moult that I suspected must take place. Nevertheless, the existence of the moult was always demonstrated when an effort was made to secure specimens at the proper time of year. Have such efforts been made to secure spring-moulting examples of European birds in cases where it is contended that no moult occurs, and, if so, has not the investigator been forced to admit that *part of the plumage* at least was moulted?

An examination of our papers mentioned above will, I consider, also force the admission that every fact so far recorded as observed in a prepared specimen or dead bird is entirely in accordance with the theory of a spring moult, and can be quoted more logically as an argument for moult than for the theory of direct change of pigment.

Mr. Bonhote, while admitting a spring moult in many birds, says: "It does not follow that, because a bird is moulting, a colour-change in individual feathers, be they old or new, is thereby excluded." Very true; if we prove that ninety-nine feathers break from the sheath just as they are in the nuptial dress, we may not be able to prove that the hundredth does not undergo a change, and it is manifestly out of the question to demonstrate how every individual of a species changes its plumage, but having proved a reasonable number of cases, may we not count our inference legitimate? All scientific reasoning is by such methods. Furthermore, with the change by means of moult proven in so many birds, why should we seek to demonstrate that such a wonderful phenomenon as the alleged "change of pigment" should also take place in the same species? especially since many of the details of such a change as set forth by its advocates are at variance with what we know of the histology of the feather.

On Mr. Bonhote's line of argument we might as well claim that although we know that a large number of crabs increase in size only at definite periods when the old shell has been shed, nevertheless this does not *prove* that *some* individual crabs do not go on growing continuously. I fear, however, that carcinologists would regard this as an unnecessary hypothesis and quite unworthy of serious consideration. Furthermore, they would hardly consider the existence of a series of crabs of graded size as *proof* of this method of growth. A series of particoloured feathers, however, is supposed to prove the alleged change of pigment!

Is it not really the reluctance to overthrow a theory which has been held so long that unconsciously prejudices the adherents of the direct colour-change theory?

I therefore once more earnestly refer those who may wish to investigate this subject to our former papers, and for the present merely intend to consider the spring moult of one form. As Mr. Bonhote suggests that I should extend my studies to the *Limicolæ*, we will take as our example the Sanderling (*Calidris arenaria*), a peculiarly appropriate species, since it is common to both sides of the Atlantic, and is known on both by the same technical name!

The arguments of the colour-change advocates, so far as this bird is concerned, are well set forth by Mr. J. G. Millais, in 'The Ibis' for Oct. 1896, p. 451, and on plate x. he illustrates his theory by feathers taken from birds shot in March (a grey feather), April (one with a dusky centre), May (a blackish feather with white tip), and June (a similar one with fulvous tip). These, he claims, represent the successive stages through which each feather passes as the grey winter plumage changes to the rufous summer dress.

A series of these birds is now before me from various parts of the Atlantic coast of America and Greenland. Winter specimens (26171, Cape May, New Jersey, Nov. 28, 1878, for example) have the feathers of the back like Mr. Millais' fig. 1 (March), while some individuals also show feathers like his fig. 2. In my March, April, and May birds, in which the change is taking place, I find feathers like his figs. 3 and 4 occurring in numbers, both styles in the same specimen, and of those which are just breaking from the sheath quite as many have brown tips as white, while *all these partly expanded feathers are black-centred.* This certainly shows that these grey feathers are not the early stages of the black, as Mr. Millais would have us believe. Furthermore, in a breeding-bird from Greenland (No. 30197, June 14, 1892) many of the feathers have white tips, although all are more or less abraded. This is additional proof that the white-tipped feathers are always white-tipped (except where they are worn) and not early stages of the rufous-tipped.

I may further state that every Sanderling examined which had been taken in the changing spring-plumage showed abundant partly-expanded pin-feathers, and yet Mr. Millais states that no moult occurs at this time! Is it possible that he did not take the trouble to raise the plumage to look for these new feathers, or did he write this statement when he had not his material before him?

The above facts set forth by me (and more fully elaborated by Messrs. Chapman and Dwight) show conclusively that the dark nuptial feathers *which positively do come in by moult* in March, April, and May, remain precisely as they are from the time they burst from the sheath until they fall out in the post-nuptial moult.

To argue that the presence of a series of feathers on one bird, or several which show a range of colour-variation, is a proof that each individual feather goes successively through all those variations, is no more logical than to claim that if the pales at one end of a fence are painted red, and those at the other end blue, with the intervening ones graded in shades of purple, we have proof that each one of the blue pales has passed through all the intermediate shades of colour!

A few words must be said in conclusion on the study of birds in captivity. Mr. Bonhote suggests that I should extend my investigations to this field. This I have done to a certain extent for some years past, and in the case of *Dolichonyx oryzivorus*, *Zamelodia ludoviciana*, and other species in which the change is less striking, I find in every individual examined that a spring moult takes place, while there is no indication of a colour-change in the individual feathers.

The difficulties in the way of this method of study are very great, and it is extremely hard, as Mr. Bonhote admits, to study any individual feather. To my mind none of the rare instances yet quoted of change of pigment in the feathers of live birds are at all conclusive, since so many ways suggest themselves in which observers may unintentionally misinterpret what they see, and so many details are lacking in their accounts. One argument which has been quoted in support of the colour-change theory is the effect of a diet of cayenne-pepper in brightening the plumage of Canaries; but the breeders with whom I have talked state that no change is noticed until after the moult, and that it is the new feathers which are affected. Are not the alleged changed feathers in living birds merely new feathers suddenly expanded from pin-feathers which had before escaped notice? The presence of a few of these new feathers and a number of permanently particoloured feathers would apparently furnish all the proof required. Moreover, the fact which I have stated elsewhere that cage-birds moult very irregularly and imperfectly, adds to the difficulty of drawing accurate deductions from their study.

It is my earnest desire that many investigators may be led to pursue this branch of ornithological research, and I cannot but feel that if due weight be given to the points brought forward in the preceding pages, we shall have but few additions to the ranks of the colour-change advocates. In any case, I cannot too strongly urge care in the examination of specimens, and the study of large series taken at all periods of the year.

Pennæ *pennis* non mutantur!

XV.—*Description of a new Species of Bush-Shrike from the Knysna District of Cape Colony.* By W. L. Sclater, M.A., F.Z.S., Director of the South-African Museum.

(Plate VI.)

Laniarius maraisi, sp. nov. (Plate VI.)

Head and back bluish grey, slightly streaked with green; back and wings dull green, brightest on the rump and upper tail-coverts; a few of the outer wing-coverts tipped with dull white; wing-quills dusky, edged along the outer web with green, the inner edges of all except the first two pale yellow; tail-quills dull green, the inner webs and tips of all but the two central edged with pale yellow; eye-coverts greyish. Beneath dull whitish, the neck and breast with narrow, rather irregular, fine bars of greyish black, and slightly tinged with yellow; thighs greenish; abdomen and under tail-coverts pure white; edge of the wing, axillaries, and under wing-coverts bright lemon-yellow. Iris reddish brown; bill dark horn, base of lower mandible light horn; tarsi bluish slate. Length of skin about 7·5 inches, wing 3·25, tail 3·5, culmen 0·60, tarsus 0·92.

The female resembles the male, but there is not quite so much yellow about the breast, and it is slightly smaller. Wing 3·10 inches, tail 3·20, tarsus 0·90.

Mr. Marais, after whom I have named this species, sent me the first example of it two years ago, but I originally thought that it must be a young specimen of *L. rubiginosus*. He, however, stated that his specimens were adult birds, and he has since shot a good many more examples.

The following is a complete list of them, with dates and sexes:—

♂.	Gonna, Knysna		10. 5. 98.
♀.	Salt River, Knysna		14. 5. 98.
♂ adult.	Craddocks Bush, Knysna		3. 11. 98.
♂.	„	„	8. 10. 99.
♂ adult.	Stockbels Bush,	„	11. 10. 99.
♀ adult.	„	„	11. 10. 99.
♀ adult.	Brick-kiln Bush,	„	12. 10. 99.
♂ adult.	Stockbels Bush,	„	13. 10. 99.
♂ adult.	Craddocks Bush,	„	16. 10. 99.
♂ adult.	Brick-kiln Bush,	„	1. 11. 99.
♂ adult.	Salt River,	„	20. 11. 99.

Mr. Marais tells me that he has found the sexual organs enlarged and obviously in use in most of these birds, and I have no hesitation in considering the species new.

From the adult *L. rubiginosus* the present bird differs markedly in the absence of the white lores, of the black stripe through the eye, and of the pale rufous breast. Young examples of *L. rubiginosus*, although without the black band through the eye, always have the throat and breast slightly tinged with pale rufous, and the freckling of the lower surface does not extend to the chin and throat; neither has *L. rubiginosus*, either in the young or adult stage, the pale tips to the wing-coverts present in *L. maraisi*.

I have not been able to compare *L. maraisi* with the young stages of *L. olivaceus* for want of specimens, but the latter is very rare in the Knysna, and has, in fact, been only once obtained by Mr. Marais in that district; this being, so far as I am able to ascertain, the first definite record of its occurrence within the borders of the Cape Colony.

[There are two skins in the Collection of the British Museum which appear to be referable to this species, if distinct, as Mr. W. L. Sclater believes. They have been catalogued (B. M. C. viii. p. 161) as the young of *L. rubiginosus* (specimens *h* and *i*). There is also a third recently received from the Seebohm bequest.—Edd.]

XVI.—*A Visit to a Nesting Colony of the Straw-necked Ibis.*

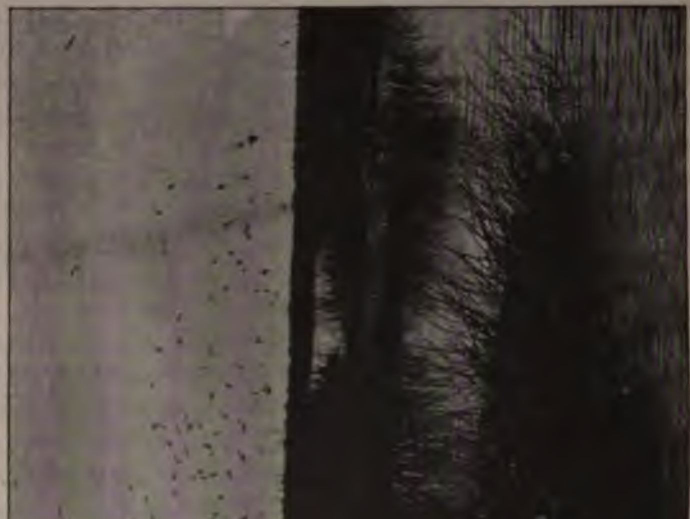
By D. Le Souëf, C.M.Z.S. (Melbourne).

The Straw-necked Ibis (*Carphibis spinicollis*) is found all over Australia, according to the season, while it frequently congregates in vast numbers, for the purpose of nesting, in some locality where there has been a sufficiently abundant rainfall and where food is plentiful.

The colony of this Ibis which I propose to describe is situated on the plains in the Riverina district, New South Wales, where a large swamp of about 600 acres has this year [1900] been filled with rain-water to the depth of 3 feet for the first time since 1894. In 1896 this swamp was partly full, and large numbers of Ibises came to breed upon it, but about a fortnight after the eggs were laid—the water in the meantime having dried up very rapidly—all the birds suddenly deserted their nests and left the district, while in two days' time every egg had been eaten by Ravens (*Corvus australis*). The birds evidently changed their quarters on account of the disappearance of the water, and also probably on account of the failure of their food-supply, as the season was not very favourable. This year the swamp is quite full, and, after careful computation, I should estimate the number of Ibises on it at somewhere about 200,000, more likely above than below that estimate. It is curious how these birds affect certain localities, while others that seem to be equally suitable are untenanted; but they evidently prefer breeding in company, and have apparently winged their way from all over the colony to this favoured spot, where probably most of them had been hatched and reared. In dry seasons, moreover, not a single individual seems to be found anywhere in the district, but directly there is an abundant rainfall thousands arrive.

The swamp (see fig. 18, p. 186) is more or less covered with dense lignum bushes, which the birds break and tread down until they form a kind of platform from 6 to 18 inches above the water. Then they build twig-nests about 2 inches deep and 6 inches in diameter on the lignum. A few of the

Fig. 18.



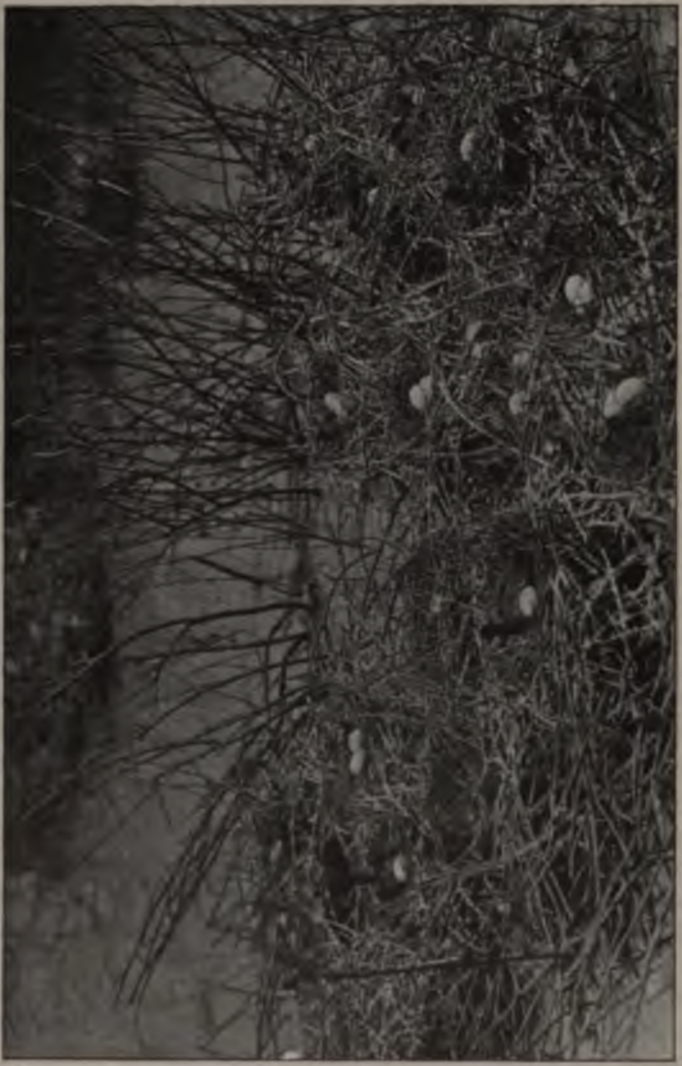
Breeding-swamp of the Straw-necked Ibis.

nests have a lining composed of a yellow-flowered annual which grows on the plains, though the bulk have none. Thirty of these structures are frequently to be seen on one bush, while others that are smaller hold only from three to a dozen nests. Many of the birds began to breed on September 8th this year, having arrived in various-sized companies, each of which seemed to choose a bush of suitable dimensions. After due preparation they built their nests and began to lay about the same day, consequently all those on one bush, with few exceptions, contained the same number of eggs. Now as this species is gregarious, and always lives in parties of variable size, it is probable that the supposition that each flock as it arrives builds in company is correct, the birds composing it being known, as it were, to each other; consequently the vast assembly is divided up into small detached sections of from three to thirty pairs.

From the outskirts of the swamp only a few birds can be seen; and those above the bushes in the centre; but the noise from such a vast concourse closely resembles that of heavy surf beating on a shore, and would be most puzzling if its cause was not apparent. The beaks of the birds are very strong, and it is surprising what tough green twigs they manage to break off in order to build their nests. By far the greater part of these contain three eggs, but many have four, and a few of them five.

One might naturally wonder how such a vast number of birds could find sufficient food on the surrounding plains, especially when the young have to be provided for; but in a favourable season dark-coloured caterpillars, which do great damage to the herbage, are generally to be found in immense numbers among the grass and weeds during the months of August and September. At this period the various companies of Ibises hunt systematically over the flats, eating the caterpillars, and turning over clods of earth, stones, or the like, in the hope of finding some luckless centipede, beetle, or other insect beneath them. Later, in October and November, when the young are hatched, millions of grasshoppers are hatched also, which afford abundant food for the growing

Fig. 10.



Nests and Eggs of the Straw-necked Ibis.

appetite of the nestlings; and since there are probably more than 200,000 mouths to fill, some little idea can be formed of the immense utility of these birds in destroying that settler's scourge, the grasshopper or locust.

Hatching takes place in the order in which the eggs are laid, that is every other day, so that in nests on the same bush there may be noticed one young bird and two eggs, or two young and one egg, as the case may be (see fig. 19, p. 188); the little things grow very rapidly, and the down with which they are covered is black. For the first few days they seem to have the curious habit of waving their heads from side to side, as all those seen were doing so. The parents feed them with partially digested food, and it is an interesting sight to see the various companies of adults going to and returning from some favourite feeding-ground, the male and female birds relieving each other in the duty. Occasionally a flock will soar to a great height before leaving, and can just be seen with the naked eye as the individuals circle aloft in the clear azure sky. When the young are about a week old they are able to move freely upon the platform on which their nests are built, and if disturbed, all huddle up on the far side, whence they readily take to the water and swim to a neighbouring bush. It is most astonishing to see how they climb and scramble through the tough lignum, freely using their wings, beak, and claws for those purposes, while they either put the beak over some higher branch to help themselves up, or catch hold of a bough with it for the same object. How the parents can find their own young when they are mixed up with hundreds of others, I cannot say.

The nestlings are easily reared in captivity if taken when nearly fledged, and soon become very tame and tractable. The amount of food the adults and young consume must be immense, as the contents of an average stomach were found to be 2410 young grasshoppers, several caterpillars, five freshwater snails, and nine little pieces of gravel, as well as a few small bones, weighing in all 4½ oz. Thus the stomachs of 200,000 adult birds would contain about 482,000,000 young grasshoppers, besides a large number of caterpillars, snails, and so forth, the total weight being estimated at 25 tons. When, moreover, the contents of the bulky crops of the young are also considered, the amount will be greatly increased. Of course, as the grasshoppers or locusts grow larger, a smaller number becomes necessary. Like the caterpillars, these insects are a well-known scourge, and devour huge quantities of green food; the freshwater snails also are frequently the hosts of the liver-fluke.

XVII.—*Ornithological Notes from the Transvaal.*

By Alwin C. Haagner.

I have now the pleasure of offering to the readers of 'The Ibis' a few additional notes on the birds of this part of the Colony of Transvaal.[*]

1. **Pyromelana oryx.** (Orange Bishop-bird.)

The nest of this species is woven of strips of the leaves of reeds and grasses, and is lined with the flowering heads of the latter. It is suspended between two reeds (sometimes three) growing in the vicinity of water or in damp places. When such fail the nest is placed among the rank weeds so abundant in many spots. On one occasion I found it on a wild plum-tree. The shape of the nest is oval, with the aperture at the side near the top. Eggs three or four in number, and of a beautiful blue-green colour. When blown they often shew a lovely pure light-blue tint. Axis $\frac{11}{16}''$ to $\frac{3}{4}''$, diam. $\frac{1}{2}''$.

In the year 1898 I did not find a single nest containing more than three eggs. This may perhaps be accounted for by the scarcity of food, but I think that it is the usual number. Building commenced in September and October in 1897. In 1898, probably owing to the length and severity of the winter, the birds only began late in November. In 1899 they started in October, as also in this year (1900).

These birds congregate in large flocks among the reeds and cultivated lands, doing much damage to the latter.

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[*] [For previous notes, see 'Ibis,' 1901, p. 15.—Edd.]

Their principal food appears to be various seeds and grain of any sort.

The first appearance in summer-dress is about three weeks before the dates above given, and often much less. The cry is a kind of grating chirp, rather brisk and not unlike "tchwirt, tchwirt." In my opinion these birds rank among the most beautiful of avian species, the brilliant orange-red and glossy black forming a grand contrast.

2. PYROMELANA TAHA. (Taha Bishop-bird.)

The nesting-habits of this species are nearly the same as those of its congener, *P. oryx*, only it seems to prefer the rank weeds that border the vleys and dams to reeds. The eggs are four or five in number, and of a pure white, speckled with tiny dark-brown dots. They are a good deal smaller than those of the preceding. Axis $\frac{10}{16}''$-$\frac{11}{16}''$, diam. $\frac{7}{16}''$ (17-18 mm. by 11-12 mm.). In 1897 I found a good many nests among the rank weeds at the bottom of our garden, just bordering a spruit. In flight these birds puff up the feathers, giving themselves the appearance of balls of gold floating in the air. In 1899 I noticed them in large numbers on an adjoining farm, whereas in former seasons scarcely half a dozen were to be seen. They are fairly common this year at Modderfontein and in the neighbourhood.

3. CERYLE RUDIS. (Pied Kingfisher.)

This species is not common hereabouts, although I have seen a few pairs every season. On the 18th February, 1899, while dissecting a specimen which I had just shot and skinned, I found in the stomach a large number of bones, which on examination proved to be the phalangeal bones of a frog's pes and manus. These birds frequent the banks of dams and spruits.

4. CAPRIMULGUS RUFIGENA. (Rufous-cheeked Nightjar.)

In the year 1898, while shooting on a farm near Kaalfontein Station, I got an example of this species. In a paper on "Protective Resemblance in Birds, as observed in South-African Species," read by me at a meeting of the Johannesburg Field-Naturalists' Club, I discussed the wonderful protective resemblance of this Nightjar. On one occasion I could not clearly make out what seemed to be a hump on a branch, and on climbing up to get a closer view, was astonished to see a Nightjar fly off. It had been sitting lengthways on the bough, flattened up against it, and the colours of the animate and inanimate objects blended to perfection.

5. Coliopasser procne. (Long-tailed Widow-bird.)

This species is very common in the Transvaal, so far as can be judged from my experience in the Pretoria and Heidelberg districts. It is seen flying about the velt everywhere, which is not the case with any other species of Weaver, so far as I am aware. The nesting-season commences in October and November. The eggs are of a dirty grey-white ground-colour, indiscriminately dotted and blotched with light and purplish brown. Axis ⅞″ or 22–23 mm., diam. 1⅙″ or 14–15 mm. Their number is generally four, but varies, according to my experience, from three to five. I have always found the nest in a tuft of long herbage near the ground. It is constructed of fine grass and lined with the flowery heads of the same.

6. Passer arcuatus. (Arched Sparrow.)

On the 17th February, 1900, I found a fully-fledged young Cuckoo (*Chrysococcyx cupreus*) in a nest of this bird. I put it in a cage, which greatly excited its foster parents. They resented my treatment of their supposed youngster by loud cries, and approached me in their agitation to within a distance of four feet. They kept hovering round the cage until I had let the fledgling go.

7. Tinnunculus rupicoloides. (Larger South-African Kestrel.)

In my first paper (*suprà*, p. 16) I gave a description of the eggs of this bird. On the 28th July, 1899, on dissecting a specimen, I found its stomach full of ants with a whole lizard in two pieces. In its gullet I found a large quantity of remains of birds. The food appears to be insects, lizards, birds, and mice. Soft parts:—Irides pinkish hazel; cere bright yellow; legs pale ochreous yellow; bill black at tip, base light bluish slate-colour.

8. Tinnunculus rupicola. (Lesser South-African Kestrel.)

On the 7th of October, 1900, I found a nest of this species in a mimosa bush (*Acacia horrida*). It was constructed of twigs, lined with hair, wool, and feathers, and contained three eggs, the description being as follows: cream-coloured ground, thickly spotted and blotched with various shades of brown; axis $1\frac{11}{16}''$, diam. $1\frac{5}{16}''$. When these Kestrels are eating a bird, I noticed that they do *not* grasp it with both feet. Taking it in one foot, the individual I watched would hop about until he fancied he had found a suitable spot for his meal, when he tore off all the feathers, and then rent the body asunder and swallowed the pieces.

9. Scopus umbretta. (Hammerkop.)

A pair of these highly interesting and peculiar birds have been constructing a huge nest in a willow tree near this place for the last month, at a height of about 12 feet from the ground. Measurements as follows: about a yard and a half in diameter across the top and little more than a yard in height. The fabric is constructed of twigs, weeds, reeds, and grass, cemented together into a compact mass with mud. On the top of it the owners have placed stones, pieces of plank, tins, bones, and even a dead bird. The object is evidently to hide the real appearance of the nest from above. The entrance-hole is on the only inaccessible side of the tree, a circumstance displaying much forethought on the part of the parents. I would much like to take the eggs, but cannot get hold of them without breaking the nest, which I have no inclination to do; it is so strongly built that, although I have stood upon the top, no damage was caused to it by my weight.

10. Spreo bicolor. (Witgat Spreeuw.)

On the 20th of October of this year I found a nest of this species in a hole in the stone wall of a local causeway or bridge. It contained five eggs of a plain bright greenish blue. Axis 1 inch 5 lines, diam. 14 lines. This bird is very common hereabouts.

11. Poliospiza gularis. (Streaky-headed Seed-eater.)

On October 25th, 1900, I found a nest of this species, which is fairly plentiful here, built in a plum-tree in our garden, about 4 feet above the ground. It was cup-shaped, and constructed of the stems of a very common plant, and lined with the flaxen tops of flowering grasses. It contained three eggs of a very light bluish white, sprinkled with dark and purplish-brown dots, chiefly at the larger end. Axis nearly 13½ lines, diam. 9½ lines.

Modderfontein,
December 16th, 1900.

XVIII.—*Notes on the Cassowaries of the Dresden Museum.*

By Dr. A. B. Meyer.

Mr. Rothschild's valuable monograph of the genus *Casuarius* (Tr. Z. S. xv. pp. 109–148, pls. xxii.–xli., 1900) has enabled me to revise the determination of the specimens in the Dresden Museum, and I beg leave to offer a few remarks upon them.

(1) The Museum received, in the year 1899, a specimen shot on the hills behind Bongu, at the back of Constantinhafen, in Astrolabe Bay, German New Guinea, that is, on the northern slopes of the Finisterre Mountains. This specimen proves to belong to *C. picticollis hecki* Rothsch. (*l. c.* p. 144, pl. xxxvii.), known till now only from an example living in the Zoological Garden of Berlin, with the habitat "German New Guinea." The Dresden specimen gives the first exact locality for this species within a larger range, which we shall ascertain correctly later.

(2) In the year 1883 the Museum procured an example from "Port Moresby," British New Guinea, designated as *C. beccarii* Scl. (or *C. sclateri* Salv.). This now proves to be *C. casuarius intensus* Rothsch. (*l. c.* p. 121, pl. xxvii.),

described from living specimens at Tring, "*Habitat* unknown." Even if "Port Moresby" itself should not be the exact locality where this individual was shot, we may infer that it was obtained not far off. The future will give us the more exact information necessary.

(3) Three specimens of *C. bennetti* Gould (*l. c.* p. 145, pl. xxxix.) from New Britain in our collection do not agree as to the shape of the casque with Mr. Rothschild's plate, nor with his description of the casque of *C. bennetti maculatus* Rothsch. (*l. c.* p. 148, habitat unknown). These three specimens are from the Valley of Warangoi, in the Gazelle Peninsula—that is, to the south of Herbertshöhe, round Cape Wuatta, about where on the maps "Putput Harbour" is indicated. They agree well among themselves. I suppose that Mr. Rothschild's representation of the casque of this species (pl. xxxix.) does not exhibit all the phases, as it appears very improbable that the specimens before me can belong to another subspecies, the more so as the casque of a skeleton in the Museum, prepared from an example received from a zoological garden, also agrees with the three above-mentioned birds.

(4) There is in the Dresden Museum, recently procured, a chick from Sattelberg, in the north of Huon Gulf, which may belong to *C. uniappendiculatus aurantiacus* Rothsch. (*l. c.* p. 136, pl. xxxii.), or to *C. picticollis hecki* Rothsch. (*l. c.* p. 144, pl. xxxvii.), both known at present only from specimens in the Berlin Zoological Garden, with the habitat "German New Guinea." The chick has not yet been described, but I abstain from doing this because these *pulli* cannot be discriminated by mere description. It might possibly belong to some other species.

(5) Together with a specimen of *Casuarius loriæ* Rothsch. (*l. c.* p. 142, pl. xxxviii.), from the same locality and the same collector as Mr. Rothschild's example, the Dresden Museum has quite recently received a chick and an egg of that species. Though, as already remarked, it is of not much use to describe a chick of any form of *Casuarius*, on account of the great general resemblance, I may mention that ours

has five distinct broad black stripes on the upperside, and that the tawny-coloured stripes between them are narrower than the black.

(6) I described, in the year 1884 (Z. ges. Orn. i. p. 296, sp. 82), an egg of a *Casuarius* from Aru, which Mr. Rothschild has designated, with a query, as that of either *C. casuarius beccarii* Scl. (p. 117), from Vokan, or of *C. bicarunculatus* Scl. (p. 130), from Wammer and Kabroor. Since my description was published, I have been able to enquire of the collector as to the exact locality whence the specimen came, and have been told that it was from Ureiuning, on the Wanumbay River. It must therefore belong to the latter species.

(7) I cannot agree with Mr. Rothschild as to the locality of *Mansinam* (p. 141). The village on the mainland is called *Manseiman*, not to be confounded with *Mansinam* on the island of Manaswari, *Manseiman* being up the mountain —*cf.* my 'Neu-Guinea Tagebuch,' pp. 11 & 15, and map (1875). This, however, is of little consequence.

So far as I know, the splendid series of Cassowaries in the Turati Collection, now in the Museum of Milan, has not yet been sufficiently studied. These specimens, with their localities, would perhaps add something to our knowledge of the group, which is, even after Mr. Rothschild's admirable endeavours, far from being complete.

Royal Zoological Museum, Dresden,
January 28th, 1901.

XIX.—*On the Habits and Haunts of the Noio or Hawaiian Noddy Tern.* By H. W. Henshaw.

Upon much of the windward side of the Island of Hawaii the coast is bold and rugged; nor has it been entirely in vain that the north-east trades have essayed their might against the obdurate volcanic rock for centuries, as witness the many little bays and recesses which have been formed.

This rugged, lonely, surf-streaked coast is the haunt of the Noio (*Anous hawaiiensis*), which species, the Tropic-bird, and the Ulili (*Totanus incanus*) are its sole avian inhabitants, save where the Mynah and the Domestic Dove have established colonies in the faces of the cliffs.

The shallow caverns eaten here and there into the bases of the bluffs with the more protected ledges are the chosen homes of the Noddies. Within these rocky shelters they roost securely at night, and there in summer they build their nests and lay their spotted eggs on the flat, stony shelves. The Noio is a very child of the ocean, and asks nothing more than to pass its whole existence within the sound of the surf-beaten shores.

The habit of nesting in rock-shelters and upon ledges of cliffs, long since noticed by Mr. Dole, is especially remarkable, when it is remembered that Palmer, Mr. Rothschild's collector, found the bird breeding upon the ground under bushes on Laysan and on other islands to the north-west of the Hawaiian Archipelago. Evidently the Noio has been able to conform its habits to its environment, and so lives and thrives under conditions which have repelled all others of the group.

Unlike the Terns proper, this Noddy never dives or plunges deeply into the water after its finny prey; with slow and measured wing-beats it flies just above the surface of the ocean, following the curving billows with prying eyes, and turning sharply to the right or left to seize its booty with a quick downward swoop.

Its favourite food is a long, slim, silvery minnow, known to the natives by the name of Noi Noi, in pursuit of which it makes frequent excursions off land, companies of fifty or more being often seen five or ten miles from the coast, all actively engaged in fishing. In summer its presence is eagerly watched for by the Hawaiian fishermen, since where the Noio congregates, there also the Aku or "Skipjack" is sure to be found eagerly pursuing the same little fishes.

The surface of the Pacific near the islands is usually calm, save for a long, majestic swell, or for troubled currents among the surf-beaten rocks, and there the bird may be seen hunting, rather than in the smooth shallow waters of the sheltered bays. In short, it appears to shun the places where Terns are generally most at home.

It fishes most actively in the early morning and late afternoon, the interval being passed at rest upon some favourite ledge.

The Noio is gentle and sociable in disposition, as indeed are most of its kind, and the members of a colony seem to dwell together in the utmost harmony. It appears to have no natural enemies except man, and, as its nesting-sites are rarely accessible, or only so under certain unusual conditions of wind and water, they are not often disturbed even by the natives.

In the olden time meat was very scarce in the Hawaiian Islands, where the largest wild animal was a rat, and the only domesticated species were the dog and the pig. I understand that then the natives used to make raids upon the Noio at night by the aid of torches, and plunder the nests of both eggs and young. Bewildered by the light, the old birds flew round and round and were easily knocked down with clubs. The flesh is tender and, notwithstanding the fish diet, is said to be not unpalatable. When molested by day, the members of a colony circle wildly about their threatened homes, uttering a harsh crik, crik; but if no real harm is apprehended, they soon recover their equanimity, and in a few moments return to their nests or perching-places. The Noio possesses the confidence born of long immunity from danger.

The writer's own experience is limited to the Island of Hawaii, but there is abundant evidence to shew that the bird is generally distributed throughout the group.

Mr. Palmer found *Anous stolidus* on French Frigate and Laysan Islands, but that bird appears to be absent from the coast of Hawaii, and may not occur, except perhaps casually, anywhere in the Archipelago. Mr. Dole's references, as indicated by Mr. Wilson, apply solely to the Noio.

I have spoken above of the nest, but in truth the little collection of rubbish gathered from the sea hardly deserves that name; it is always damp, sodden, and foul-smelling, but even so serves to keep the eggs and newly-hatched young from the bare rock and, what is perhaps of more importance, prevents them from rolling off the sloping and insecure ledges. However, not many days pass after the Noio is hatched before it is able to look after itself. It scrambles over the rocky shelf to meet the parent bird when it comes with food, and upon detecting danger stows itself away in some crack or deep recess till reassured by the well-known summons.

Like the ordinary Noddy Tern, the Noio lays but one egg, while its breeding-season appears to be prolonged, for I have found fresh eggs as early as February 11, and have seen newly-hatched young as late as July 1. The prolongation may, in part, be due to the birds being disturbed, in part to the lack of suitable nesting-sites. The volcanic cliffs, owing to the nature of the cleavage, probably do not offer a sufficiency of suitable ledges and shelves for all the pairs, so that some have to wait their turn until later. Be the explanation what it may, in one cave that I often visited there were always fifteen or twenty pairs of birds, while I have never found more than six eggs and young at the same time.

Under these circumstances it would be interesting to discover if such colonies are not to some extent communal. It is possible that all the old birds contribute more or less to the support of the young, as they are hatched from month to month, whether they be their own offspring or those of others. Such a habit is quite conceivable in the case of a bird so gentle and affectionate as the Noio.

The eggs resemble those of other species of Noddy. The ground-colour is a rather clear greyish white, but is apt to be stained by contact with the nest to a dirty brown of varying intensity. The amount of marking varies within wide limits. Many specimens are spotted and blotched with clove-brown, which is sometimes so thickly deposited as to appear almost black. One that lies before me is heavily clouded with dark lilac, and has smaller markings of clove-brown. When overlaid with lime the markings appear purplish.

Five eggs measure: 1·87 × 1·37; 1·87 × 1·31; 1·81 × 1·25; 1·81 × 1·37; 1·75 × 1·38 inch.

In colour the young birds repeat the pattern of their parents. The head and occiput are clear greyish white, even lighter than the ashy head of the adult. The lores and postorbital spaces are black. The other parts are sooty black. The legs and feet are dark brown, affording no hint of the yellow or orange hue of maturity.

XX.—*On the Anatomy of the Radiated Fruit-Cuckoo* (Carpococcyx radiatus). By Frank E. Beddard, M.A., F.R.S.

So far as I am aware, there is no published account of the anatomy of *Carpococcyx*. Being particularly interested in the group of Cuckoos, I am glad to have this opportunity of contributing to ornithology some account of its structure, which is based upon a specimen recently living in the Gardens of the Zoological Society of London*.

a. *External Characters.*

As in Cuckoos generally, the *oil-gland* is nude.

I counted 10 rectrices and 18 remiges. The fifth cubital remex is *not* missing.

The ventral feather-tracts in *Carpococcyx* separate from each other about halfway down the neck. On the breast the tract of each side is not more than two or three feathers wide. A small tract of feeble feathers runs thence to the hypopteron. At about the middle of the sternum the tract divides, and each half is very rapidly reduced to the width of a single feather. There is no union of the divided tracts whatever at the cloaca or anywhere else; they are completely separate throughout.

Dorsally there is a very marked break between the cervical portion of the dorsal tract and the rest. The spinal tract is at first narrow, but is broader posteriorly from the level of the articulation of the femora; it terminates at the base of the oil-gland. It is connected at the sides by sparse feathering with the femoral tracts. There is no median apterion.

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* Received August 31st, 1882. See P. Z. S. 1882, p. 358. It lived nearly 18 years in the Gardens, and died June 7th, 1900. It was fed mostly on a vegetable diet with a little scraped raw meat intermixed; occasionally insects were given, and a dead mouse every other day.

It is clear that the pterylosis of *Carpococcyx* conforms generally to the plan of arrangement which characterizes such Cuckoos as *Centropus**, for the ventral tract of each side divides upon the breast to form two separate tracts, which, as in *Centropus celebensis*, retain their individuality to the end. There is also an agreement with many Cuckoos in the fact that there is a marked break, absolutely without feathers, between the cervical and dorsal portions of the spinal tract. The principal difference which distinguishes *Carpococcyx* from all Cuckoos the pterylosis of which has been examined and recorded is the unbroken nature of the spinal tract. There was no trace that I could discover of a median apterion. So far this is diagnostic of the genus.

b. *Abdominal Cavity.*

The two liver-lobes extend down considerably beyond the sternum, and the right is larger than the left. Each of them, as in other Cuckoos†, and in some birds besides, is entirely shut off in a compartment of its own. There is no communication, that can be detected on dissection, between these chambers and that which lodges the intestine. The nature, however, of the right and left hepatic sacs is not quite the same. When the abdominal wall in the neighbourhood of the gizzard was removed, what appeared to be the falciform ligament was seen to pass from the gizzard between the two lobes of the liver to the sternum. A further dissection, however, showed that this apparently single membrane was double, a wide space between the two being empty of viscera, save for a portion of the gizzard, which projected into it. Of the two vertical membranes that on the left seemed to me to be the real equivalent of the falciform ligament of other birds; for it was attached to the sternum in the middle line and to the gizzard approximately so; moreover, it carried blood-vessels. The right hepatic recess has thus its own median wall, while that of the left hepatic recess is formed by the falciform ligament. I have used the expression "median" as indicating the position of that septum with regard to the two hepatic chambers. As a matter of fact, the septum in question is rather oblique in its direction, trending distinctly towards the right side of the body. It has been, I imagine, pushed backwards by the growth of the liver-lobe, and really corresponds to the transverse partition which shuts off the same liver-lobe in *Scythrops*[*].

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* Beddard, "On the Structural Characters and Classification of the Cuckoos," P. Z. S. 1885, p. 168.

† Beddard, "On the Anatomy of an Australian Cuckoo (*Scythrops novæ-hollandiæ*)," P. Z. S. 1898, p. 44.

c. *Alimentary Canal.*

The intestines are, as in the Cuckoos generally, short. The small intestines measure 24 inches; the large intestines only 2 inches, or a trifle more; the cæca 3 inches. It has already been mentioned that the right lobe of the liver is the larger. The gall-bladder is very large, and its duct, the hepatic duct, and the pancreatic duct open into the small intestine at the top of the U in the order mentioned, the first-named duct being furthest away from the pylorus.

The proportion of the length of the cæca to the length of the intestines does not differ widely from what is seen in other genera, saving only *Scythrops*, which appears to have abnormally long cæca[†].

d. *The Windpipe.*

The syrinx of *Carpococcyx* (figs. 20, 21, p. 203) is the most purely bronchial syrinx that exists among the Cuculidæ; it is even more exaggerated than that of *Crotophaga*. To the syrinx of the latter genus that of *Carpococcyx* bears the closest resemblance. It is not, however, in my opinion, necessary on this account to place the two genera in especially close proximity, a proceeding which geographical considerations do not favour. I am inclined to believe that the peculiar form of the bronchi of these two Cuckoos may have been independently arrived at by a closing up of the rings in the upper region of the bronchi like those of the Old-World *Centropus* or of the New-World *Geococcyx*. These two genera, in fact, seem so far as their windpipes are concerned, to present us with an intermediate stage between the typical tracheo-bronchial syrinx of the Phœnicophainæ and the extraordinarily specialized bronchial syrinx of *Crotophaga* and of *Carpococcyx*.

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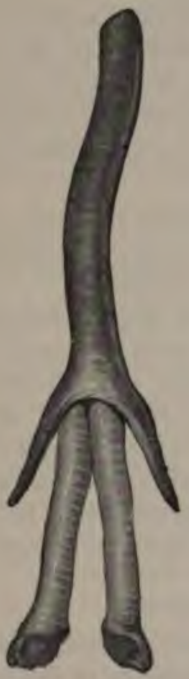
[*] See Beddard, *loc. cit.*

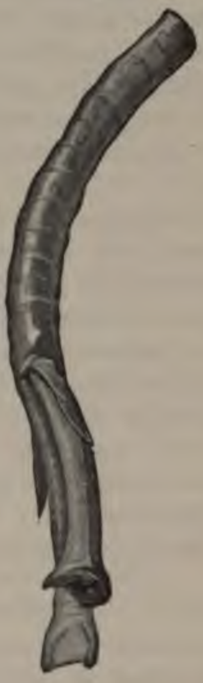
[†] See Beddard, 'The Structure and Classification of Birds' (London, 1899), the table on p. 279.

Fig. 20.



Syrinx of *Carpococcyx radiatus* (nat. size), anterior view.

Fig. 21.



The same, lateral view.

The syrinx of the latter genus is represented in figs. 20, 21, which show anterior and lateral views of the organ. The trachea divides into the two bronchi after the fashion, as it has been remarked, of the trachea of a mammal. For the space of about an inch each bronchus consists of perfectly complete rings, of which there are 22 running right round the tube. This region of the bronchus is therefore composed of many more rings than in *Crotophaga*, which has rather less than half the number. The intrinsic muscles of the syrinx run down the bronchi and are inserted on to the third of the bronchial semirings. This ring is bowed in form, the concavity being downwards, and is, in fact, exactly like the third bronchial semiring of typically tracheo-bronchial syringes.

A wide membranous space separates this ring from the next, which, like it and the following, is cartilaginous. The closed rings of the bronchi are ossified.

With the first incomplete bronchial rings commences the *membrana tympaniformis interna*, which continues to the entrance of the bronchus into the lung. Herein the syrinx of *Carpococcyx* agrees with that of *Crotophaga*. In *Steatornis*, which represents for the Goatsuckers the most extreme development of the bronchial syrinx, the *membrana tympaniformis interna* is of more limited extent, being succeeded, as well as preceded, by complete closed rings.

e. *Muscular Anatomy.*

The materials for a comparison of the muscular anatomy of the fore limb in the Cuculidæ does not at present exist, since so small a number of types have been hitherto dissected. Fürbringer studied only the three genera *Phœnicophaes*, *Zanclostomus*, and *Cuculus*, including two species of the last-named genus, and no other author seems to have treated of their muscles in any detail. I hope to have an opportunity later of examining some other genera of Cuculidæ. In the meantime I attempt to supplement Prof. Fürbringer's account by the record of the following observations. They have been compared with his accounts of his dissections, which are fully stated and easy for use in comparison.

Latissimus dorsi.—The *l. d. anterior*, whose area of origin from the vertebral column is just a fraction less than one-half of the diameter of the *l. d. posterior* at its origin, does not appear to me to be so completely fused with the latter as is asserted by Fürbringer to be the case in the Cuckoos dissected by him. The *l. d. anterior* slightly overlaps the *posterior*, and is only actually confluent with, and apparently indistinguishable from, the latter for the space of something like 2 mm. at the origin. Fürbringer speaks of their first becoming separate near the insertion on to the humerus.

Latissimus dorsi metapatagialis is a slender but obvious muscle. It is inserted in the axilla in common with the *rhomboideus superficialis*. The breadth of this muscle is about $1\frac{1}{2}$ times that of the *profundus*. The attachment is to about $\frac{5}{7}$ of the scapula, beginning proximally, and to that bone only.

Rhomboideus profundus of the present species, as in other Cuckoos, arises only from the vertebral column, and is inserted on to the distal half of the scapula.

Propatagialis.—The arrangement of the muscles and tendons of this system appears to be precisely that of other Cuckoos. A muscular pectoral slip ends in tendons which reinforce the long and short propatagial tendons. There is no biceps slip inserted on to the latter, and the tendon itself is simple and undivided.

The *expansor secundariorum* is present, as in other Cuckoos.

The *biceps* has, as in other Cuckoos described by Fürbringer, a single broad tendinous head, which arises from the acromion, and is "anchored" to the head of the humerus on its way down the arm.

The *anconeus* has a long slender tendon affixed to the humerus, in common with the *latissimus dorsi.*

The muscles of the fore limb do not appear, so far at least as our present knowledge goes, to afford any characters by which the numerous genera of Cuckoos can be classified.

It is quite otherwise with the hind limb, which does, in its muscular anatomy, exhibit characters of classificatory value. Garrod[*] was the first to draw attention to the fact that the Cuculidæ can be divided into two series, in accordance with the presence or the absence of the accessory femoro-caudal muscle. In one series, which is represented by *Centropus*, the muscle-formula of the hind limb is ABXY +, the "full" muscle-formula; in the second series, of which the genus *Cuculus* is an example, the muscle-formula is the reduced one, AXY +. Thirteen years later[†] I extended this list to a number of Cuckoos not examined by Garrod, all of which proved to have either the muscle-formula ABXY + or the reduced formula AXY +.

So far as I know, there have been no further observations upon this subject.

Naturally, therefore, one of the earliest points to which I directed my attention in dissecting *Carpococcyx* was the condition of the flexor muscles of the thigh. I found that all the four muscles in question are present, well developed, and conspicuous. So that *Carpococcyx*, like *Scythrops*, *Eudynamis*, *Phœnicophaes*, *Centropus*, *Geococcyx*, *Crotophaga*, and *Guira*, possesses the complete muscle-formula ABXY +.

I shall not give a full description of the attachments and insertions of these several muscles of the thigh, since they do not appear to me to present any noteworthy peculiarities.

As to other muscles, I may observe that the *glutæus maximus* has a large postacetabular extension, which completely hides the *biceps*, except just where the latter approaches the biceps sling.

Both the *peroneus longus* and the *peroneus brevis* are present.

f. *The Skeleton.*

The *skull* of *Carpococcyx* (fig. 22, p. 208) is not widely different from that of *Eudynamis*[*], with which I shall first of all compare it, afterwards indicating some points of likeness and unlikeness to other genera of Cuckoos. The anterior region of the skull is almost exactly the same length as the cranial, and a marked hinge-line divides the two; in *Eudynamis* the beak is relatively (as well as, of course, absolutely) shorter, and there is no hinge-line. On a dorsal view the skull of *Carpococcyx* is much less excavated in the region of the orbits, and the lacrymals do not project so much outwards; the upper surface of the skull has thus an almost regularly oval contour, more so than in any Cuckoo which I have had the opportunity of examining; the nearest approach to it is shown by *Pyrrhocentor* (fig. 24, p. 210), to which bird *Carpococcyx* is evidently closely allied.

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[*] "On Certain Muscles of the Thigh of Birds," &c., P. Z. S. 1873, p. 626.

[†] "On the Structural Characters and Classification of the Cuckoos," P. Z. S. 1885, p. 168; and "On the Anatomy of an Australian Cuckoo (*Scythrops novæ-hollandiæ*)," *ibid.* 1898, p. 44.

The ventral aspect of the skull of *Carpococcyx* differs in several respects from that of *Eudynamis*. In the first place, the foramen magnum is more decidedly ventral in position, a difference which may be correlated with the ground-frequenting habits of *Carpococcyx* and the corresponding and different position of the head. I have already pointed out that *Eudynamis* has traces of basipterygoid processes[†]. I did not, however, mention that, apparently in correspondence with these, the pterygoids are bowed inwards, and that each possesses a slightly projecting ridge, which may be looked upon, perhaps, as the rudiment of the pterygoid facet. In *Carpococcyx* the pterygoids are straight, and there are no traces of basipterygoid processes.

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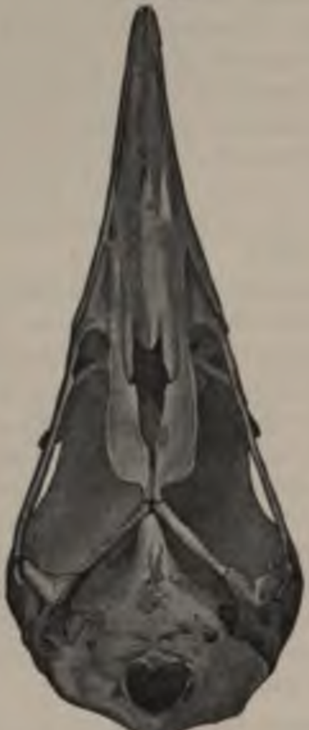
[*] I select *Eudynamis* as the type of comparison, since it is, I believe, nearer to the root-stem of the Cuculidæ than any other existing genus. I mainly compare *Carpococcyx* with other genera of the Phœnicophainæ for the same reason. The skeleton of the Cuculidæ does not, indeed, appear to me to offer many facts of structure which can be used for classificatory purposes. The utmost that can be said is, I think, that the osteology of the group does not stand in contradiction to the scheme of classification which appears to me to be the right one. I cannot extract any facts which oppose themselves to, or, on the other hand, support, a division of the Cuculidæ into the three subfamilies Cuculinæ, Phœnicophainæ, and Centropodinæ.

[†] P. Z. S. 1898, p. 48, footnote.

The palatines are distinctly different in the two birds. In *Carpococcyx* the postero-external angles* of the palatines are regularly and smoothly rounded off, as is shown in the accompanying figure (fig. 22). The ridges dividing the external or descending from the internal or ascending lamina gradually approach each other, and practically come into contact for an extent occupying about the last half of the palatine symphysis. In *Eudynamis*, on the other hand, the postero-external angles (see fig. 23, p. 209) are sharply cut away, and the ventral ridges of the palatines do not come into contact anywhere, since the internal lamina of the bone is not

Fig. 22.



Skull of *Carpococcyx radiatus* (nat. size): ventral aspect.

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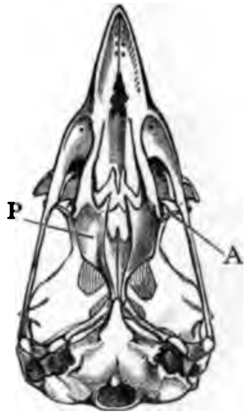
* I use the nomenclature of Huxley (P. Z. S. 1867, p. 426).

aborted posteriorly, as it is in *Carpococcyx*. This difference between the two skulls is very pronounced.

The jugal arch in *Carpococcyx* passes perfectly straight to the maxilla; in *Eudynamis* it is bowed inwards at its junction with the latter bone. In neither genus are the maxillo-palatines fused for their whole extent, as they are in *Scythrops*, but *Eudynamis* shows a tendency in the direction of a more thorough desmognathism than is exhibited by *Carpococcyx*. The accompanying figure (fig. 23) shows a splint of bone running forward from the antero-internal angle of the body of the palatine, which seems to foreshadow, or to be the remains of, a more massive palate, such as is possessed by *Scythrops*.

Fig. 23.



Skull of *Eudynamis* (nat. size), ventral aspect.
A, os uncinatum; P, palatine.
(From P. Z. S. 1898, p. 48.)

Viewed laterally, the nares of *Carpococcyx*, like those of *Eudynamis* and the majority of Cuckoos, are seen to be imperforate and single*.

The ectethmoids are swollen rounded bones, contrasting in their appearance with the flattened ectethmoids of *Eudynamis*. The lacrymals are large, with a descending process that nearly reaches the jugal. The "os uncinatum" is well developed and nearly reaches the palatine. The squamosal has a much longer forwardly directed process than in *Eudynamis*, in this character approaching *Scythrops*, which does not, however, as I interpret its structure, belong to the same subfamily of Cuckoos.

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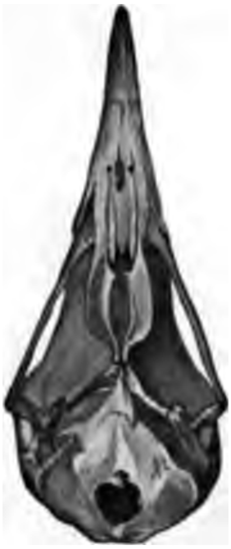
* They are divided into two in *Phœnicophaes*.

Fig. 24.

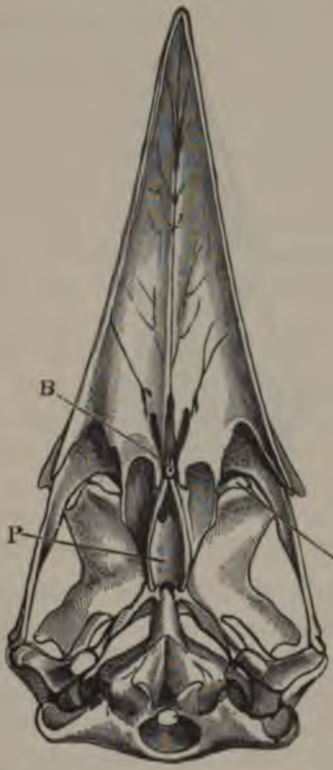


Skull of *Pyrrhocentor celebensis* (nat. size), ventral aspect.

One of the most salient points of difference which distinguishes the various genera of Cuckoos concerns the form of the palatines. *Phœnicophaes* and *Rhinococcyx* (fig. 26, p. 212) (which are really hardly separable generically) stand midway structurally, if not phylogenetically, between *Carpococcyx* and *Eudynamis*; the palatine ridges come into contact for a very short space posteriorly. It may be observed also that the rudiments of basipterygoid processes are fairly marked, but the pterygoids are not bowed inwards.

Scythrops, as the accompanying figure (fig. 25, p. 211) shows, has been developed from some such ground-form as *Eudynamis* in the opposite direction. In the last-named genus the palatine ridges are bent away from each other, approaching anteriorly and posteriorly. In *Scythrops,* contrary to what we find in *Phœnicophaes,* it is the anterior regions of the ridges which come into contact. It may be further remarked that the postero-external angles of the palatines in *Scythrops* are more cut away than in *Eudynamis,* while in *Phœnicophaes* and its ally the form of the angle is intermediate between that in *Eudynamis* and *Carpococcyx.* It is apparently easy, therefore, to trace the modifications of the palate through the series of genera which constitute the subfamilies Phœnicophainæ and Centropodinæ in two directions.

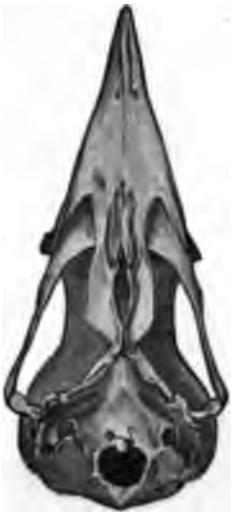
Fig. 25.



Skull of *Scythrops* (nat. size), ventral aspect.
A, os uncinatum; P, palatines; B, junction of palatines anteriorly.
(From P. Z. S. 1898, p. 47.)

Taking *Eudynamis* as representing most nearly the basal form not only of the subfamily Phœnicophainæ but also of the family Cuculidæ, the variations of the palate exhibited by other genera can be understood.

Fig. 26.



Skull of *Rhinococcyx curvirostris* (nat. size), ventral aspect.

In *Centropus* and *Pyrrhocentor*, representatives of the Old-World Centropodinæ, the palatine ridges are widely separated from each other, as in *Eudynamis*, and only just come in contact posteriorly, a fact most marked in *Pyrrhocentor*. *Carpococcyx* may be regarded as showing a further development of this. The same statement holds good for the New-World Centropodinæ; in short, in no other Cuckoo which I have had the opportunity of examining is there any extensive abortion of the inner lamina of the palatine posteriorly, such as exists in the Phœnicophainæ. Moreover, the considerable amount of variation in this part of the skull is distinctive of the Phœnicophainæ. This is possibly an additional argument in favour of the primitive position among the Cuckoos of that subfamily, a view which is accepted by Fürbringer.

Vertebral column.—There are 14 cervical vertebræ, of which only the last two bear ribs. The atlas is perforated for the odontoid process, not notched, as in *Scythrops* and *Eudynamis*. There is no catapophysial canal formed, in which respect the genus agrees with *Scythrops* and *Eudynamis*; also, as in both these genera, the single median hypapophysis is first developed upon the 10th vertebra. Five ribs reach the sternum, there being thus one more than in *Eudynamis* and *Scythrops*. In addition, there is a tiny remnant of an eighth rib attached to the middle of the seventh, of which still more minute vestiges occur in *Scythrops*. The last dorsal vertebra, as in the two genera with which I am comparing *Carpococcyx*, is fused with the sacral series. But in *Carpococcyx*, contrary to what is found in *Eudynamis* and *Scythrops*, the last median hypapophysis is on the second dorsal vertebra; in the two last-mentioned genera it is upon the first.

The vertebral column and ribs therefore of *Carpococcyx* distinguish it from *Scythrops* and *Eudynamis*, which are naturally more nearly allied to each other.

Sternum.—The sternum is marked on either side by a shallow notch, as in *Scythrops*, but the bone is not so much wider posteriorly than anteriorly, as is the case with *Scythrops*. The notches are a trifle deeper than in *Scythrops*, but not so deep as in *Eudynamis*, where, however, there is, as in *Carpococcyx*, no marked widening of the sternum posteriorly.

Hind limb.—The proportions of the several segments of this limb naturally distinguish the ground-living *Carpococcyx* from its arboreal allies. I append a few measurements (in millim.), among which I also include those of the hind limb of the "Road-runner," *Geococcyx*.

	Length of femur.	Length of tibia.	Length of metatarsus.
Carpococcyx	64	111	84
Geococcyx	48	66	50
Scythrops	58	77	44
Eudynamis	38	51	29
Saurothera	38	53	33
Diplopterus	29	42	32
Guira	39	60	40
Piaya	40	55	35

It will be noticed from these measurements that *Carpococcyx* has the most modified hind limb of any of the genera with which I deal. The tarso-metatarsus is relatively longer in this than in the remaining genera.

It is clear from the foregoing account of the anatomy of *Carpococcyx* that the genus is a member of that division of the family which appears to me to form a perfectly natural subfamily[*], and may be thus characterized:—

> Syrinx bronchial. Ventral feather-tracts bifurcate. Muscle-formula ABXY+.

This family I term CENTROPODINÆ, and it has representatives both in the Old and in the New World.

The two remaining subfamilies of the Cuculidæ may be correspondingly defined thus:—

> PHŒNICOPHAINÆ.—Syrinx tracheo-bronchial. Ventral feather-tracts bifurcate. Muscle-formula ABXY+.
>
> CUCULINÆ.—Syrinx tracheo-bronchial. Ventral feather-tracts not bifurcate. Muscle-formula AXY+.

In conclusion, it may be useful to give a definition of the genus *Carpococcyx* for comparison with other Cuckoos:—

> Genus *Carpococcyx*.—Rectrices 10; remiges 18. Eutaxial. No dorsal apterion. Each half of ventral tract ending in two separate uniserial tracts, which do not reunite. Small intestine 24 inches; cæca 3 inches. Large intestine 2 inches. Right lobe of liver > left. Gall-bladder large. Syrinx bronchial, with anterior bronchial rings complete. Muscle-formula of leg ABXY+. Cervical vertebræ 14; atlas perforated for odontoid process. Ribs $2r+5R+r$. No rudiments of basipterygoid processes in skull; pterygoids straight; ridges on palatines in contact posteriorly. Nares impervious, not divided into two.

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[*] P. Z. S. 1885, p. 187.

XXI.—*On the Birds observed during a Second Zoological Expedition to the Gran Chaco.* By J. GRAHAM KERR.

IN 'The Ibis' for 1892[*] I published an account of the avifauna of the region of the Gran Chaco traversed by the lower reaches of the River Pilcomayo. Spending, as I did during the Pilcomayo Expedition, practically the whole of my time in hunting and collecting, for the most part in company with small parties of Toba Indians, I was enabled to compile a fairly complete list of the birds. I have recently had occasion to visit the Gran Chaco again; this time, however, some 200 miles to the northward of the Pilcomayo. The object of my second expedition having been the accomplishment of a definite piece of zoological research —an investigation into the breeding-habits and embryology of the South-American Lung-fish, *Lepidosiren paradoxa*—I thought it necessary to concentrate my energies upon the solution of the special problem which I had set myself, and I therefore made no attempt to amass general collections. As, however, the particular part of the Gran Chaco in which my investigations were carried on has not hitherto, so far as I am aware, been visited by any ornithologist, it may be useful to other workers to give a short account of the district, coupled with a list of the birds definitely identified, which must necessarily be very incomplete—especially as regards the smaller and less conspicuous Passeres.

Leaving Asuncion, the capital of Paraguay, on September 24th, 1896, I and my companion, Mr. J. S. Budgett of Trinity College, Cambridge, took steamer to Villa Concepcion, which town was selected as our base. Here we spent three weeks completing our preparations and awaiting the arrival of a missionary friend, who was to be our guide into the interior of the Chaco. At Villa Concepcion the River Paraguay is divided into two channels by a low-lying, brush-covered island several miles in length. Beyond the western of these two channels lies typical Chaco country—open palm-dotted savannah, varied by patches of dense forest. On the

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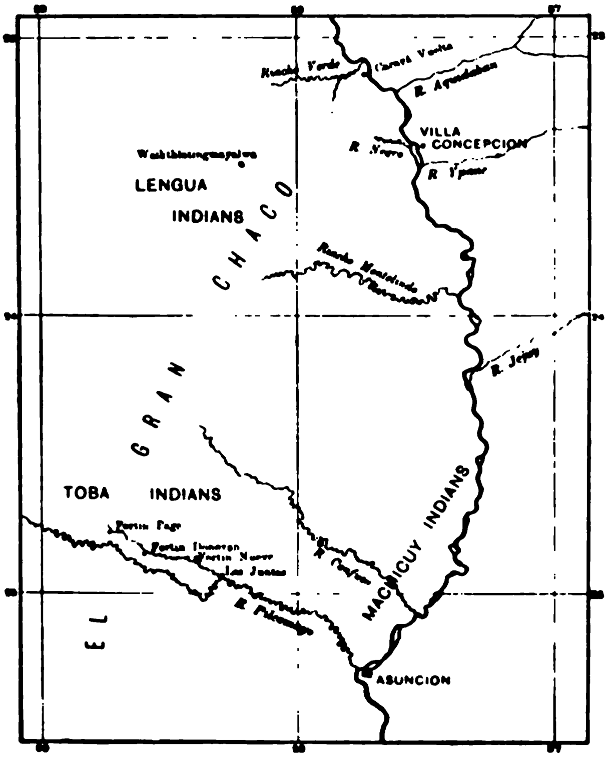
[*] "On the Avifauna of the Lower Pilcomayo," Ibis, 1892, p. 120.

Paraguayan or eastern bank, just above the town, is a large laguna, covered in places with a floating growth of beautiful blue-flowered *Pontederia*, amongst which was always to be found a little flock of "Jaçanas" (*Parra jacana*). Flitting along near the margin, specimens of three different species of Kingfishers were frequently observed (*Ceryle torquata*, *C. amazona*, and *C. americana*), and perched on some branch overhanging the water might be seen here and there a Cormorant (*Phalacrocorax vigua*), while on the ground sloping down to its edge one of the commonest birds was the little black-and-white *Fluvicola albiventris*, occurring singly or in pairs. The other most

Fig. 27.



PART OF THE GRAN CHACO,
showing the approximate position of Waikthlatingmayalwa.

noticeable species about the laguna were the Chajá (*Chauna cristata*), Ducks (*Dendrocycna fulva*) in flocks, Ibises (*Theristicus melanopis*) also in occasional flocks, Lapwings (*Belonopterus cayennensis*), and Herons, of which *Ardea cocoi* was the most common. *Syrigma sibilatrix* was observed at times, and I must not forget to mention the Toco Toucan (*Rhamphastos toco*), of which small companies were often noticed flying across from one piece of woodland to another.

On the western side of the river the country was typical Chaco savannah, while upon the very margin, just opposite Concepcion, was a narrow strip of fine "monte" or wood, in which the most striking birds were the Blue Jays (*Cyanocorax chrysops* and *C. cæruleus*). Hanging from the trees were many nests of *Amblycercus solitarius* and *Cassicus albirostris*, those of the former being larger and formed of brown fibres, those of the latter smaller and of finer black fibres. In passing I may mention one or two of the characteristic mammalian inhabitants: Agoutis were frequently seen, and two species of Opossum were fairly plentiful (*Didelphys azaræ* and *D. crassicaudata*). By the river-margins the Carpincho (*Hydrochærus capybara*) was common, and occasionally we saw an Otter (probably either *Lutra brasiliensis* or *L. paranensis*). The water close to the Chaco shore was shallow, and here the Indians speared the dreaded Sting-ray (*Tæniura dumerili*). On the low-lying island in the middle of the river, birds were plentiful, amongst which Ground-Warblers (*Geothlypis velata*), Saltators, Finches (*Spermophila palustris, Paroaria capitata*), Oven-birds (*Furnarius rufus*), and Bush-Shrikes (*Thamnophilus radiatus*) were perhaps the most common.

On the evening of October 20th we embarked upon a small steamer, with our horses and stores in a lighter lashed alongside, and started up stream for Carayá Vuelta. In the trees overhanging the river were many Cormorants, and in similar positions the Darter (*Plotus anhinga*) was abundant, sitting for the most part on some dead tree with its wings half expanded. We also saw a few Muscovy Ducks (*Cairina moschata*), an occasional Trogon (*Trogon surucura*), and, standing motionless on a sandbank, one or two Jabirus (*Mycteria americana*).

Next morning, about ten o'clock, we arrived at Carayá Vuelta, an Estancia on the western bank of the Paraguay, a short distance north of the mouth of the Rio Aquidaban. A day was spent there loading up the bullock-carts and making other preparations, and finally, on Oct. 23rd, we started off on our journey into the interior of the Chaco.

The track towards Waikthlatingmayalwa, the mission station whither we were bound, lay roughly in a S.W. direction. At one time it would traverse an apparently limitless palm-dotted savannah, again it would wind in and out along the margin of a piece of dense monte, and anon skirt by the edge of a swamp choked with rich green vegetation. The first rains were already past, and much of the open plain was covered with a few inches of water, so that travelling was very laborious. From this cause and from the intense heat, which caused the animals to be utterly exhausted after a three or four hours' journey, our progress was so slow that I began to fear that I should arrive at the haunts of *Lepidosiren* too late, and find that the fish had already spawned. As the thought of this, meaning the loss of a whole year, was quite intolerable, I decided to push ahead of the carts by forced marches. Accordingly Mr. Budgett and I, taking spare horses and carrying nothing in the way of impedimenta beyond our arms and what we could comfortably convey on our saddles, left the rest of the party on the afternoon of the fifth day, accompanied by an Indian guide; and after two and a half days' journey, uneventful though somewhat tiring, and rendered particularly disagreeable to me by a slight return of low fever, we had the satisfaction of drawing rein at our destination. Here we were most hospitably received by a second local missionary, Mr. Andrew Pride, and at once settled down to work, chafing somewhat at the absence of the carts with our baggage, which did not arrive till eight days later.

Waikthlatingmayalwa (lit. "the place where the people about to encamp found a Tortoise"), where I established my laboratory for the work upon *Lepidosiren*, and the locality near which most of the birds mentioned hereafter were observed, is a favourite fishing-station of the "Paisiaptó" or "Black-food" division of the Lengua Indians. Situated on an almost imperceptible elevation which rises some two or three feet above the general level of the plain, the settlement is surrounded by country typical of the interior of the Gran Chaco. To the northward is a grassy flat, dotted with the characteristic fan-palms (*Copernicia cerifera*) and varied by islands of dense dicotyledonous forest or "monte." To the south, east, and west stretches the great swamp. Looking across to the south-westward it seems like a great meadow, a line of palm-tops on the distant horizon marking its farther edge. Here and there appears an isolated clump of palm-trees indicating the position of an island. To the north-west and south-east it stretches away for an unknown distance, winding hither and thither over the Chaco plain like a great stream. In the swamp there is but little open water; it is mostly choked up by the dense growth of a tall *Papyrus*-like rush and by coarse swamp-grass bound together by Convolvulaceous and Asclepiadaceous creepers. The deeper parts, through which a sluggish stream meanders, are marked by the soft green colour of the big leaves of the *Thalia* or "Peguaho" as it is called in Guaraní. Where there does happen to be a piece of water free from the larger vegetation its surface is covered by an unbroken mass of floating plants, especially *Pistia* and *Azolla*, upon which we generally found a flock of Jaçanas, daintily picking their way about, and pausing now and then to stretch their beautiful lemon-coloured wings vertically upwards and to hold them motionless in that position, in the charming way so characteristic of this bird. Here and there, especially during the rainy season, were to be seen a small flock of such Ducks as *Cairina moschata* or *Dendrocycna viduata*, with a single individual or pair of the very shy Crested Duck (*Sarcidiornis carunculata*). The swamp furnishes the Indians with their chief fishing-grounds. The Indian fisherman wades through the coarse grass with a long and slender spear, watching for the tell-tale quiver of the vegetation which betrays the presence of a Lepidosiren underneath; or he makes his way to a part of the swamp where the frequent splashes all round tell him of the abundance of teleostean fishes; there he pulls the vegetation aside so as to make a clear pool one or two yards in diameter, throws into it some fragments of the big *Ampullaria* to serve as ground-bait, and then proceeds to angle with a rude fishing-rod, baiting his hook with the muscular foot of the gasteropod. By the latter method in particular he catches two species of Characinidæ—*Macrodon trahira* and *Erythrinus unitæniatus*. These species, as also *Callichthys asper*, *C. littoralis*, and *Symbranchus marmoratus*, form, together with *Lepidosiren*, the main fish-diet of the Indians. Sometimes a party of fishermen are fortunate enough to kill a large Boa, the flesh of which is also very good eating. The Jacaré, probably on account of the denseness of the vegetation, seldom wanders into the swamp, though it occurs in the sluggish streams into which the waters drain. After the rains cease, when the whole of the marsh dries up, the Jacaré retires underground, leaving only a tubular channel to communicate with the upper air, and is thus able to survive till the next rainy season, in the same way as do *Lepidosiren*, *Symbranchus*, and *Ampullaria*. In the height of the wet season the swamp is bounded on all sides by a fringe of more or less open water. Here, where there are half-prostrate palms suitable for perches, is to be heard the weird drumming sound of the Brazilian Cormorant, large numbers of these birds congregating to feed upon the fish-fry. As the visitor passes beyond the water's edge, if the ground is bare, he will probably disturb a flock of five or six Nacundá Goatsuckers (*Podager nacunda*), which lie until he is quite close to them and then rise uttering a soft cry, to flit away a little distance and then alight again, vanishing from view as if by magic the moment they touch the earth.

Beyond the margin of the swamp is the *palmar*, that type of scenery so characteristic of the Chaco—a wide-spreading savannah covered with dense coarse grass and dotted with fan-palms (*Copernicia cerifera*). Here and there are dead palm-stems which, when erect, form the nesting-places of various Ducks, Parrots, and so forth and, when prostrate, give a home to small mammals such as rats and mice, and the particularly beautiful and conspicuous little mouse-like opossum (*Marmosa pusilla*). In the latter part of summer the females of this opossum are frequently found almost entirely concealed by their young, which cling to the mother up till the time that they are nearly full-grown. In the open *palmar* bird-life is always abundant—Icterids, Finches, Woodpeckers, and Parrots being perhaps the most conspicuous of the smaller species. Occasionally a troop of Rheas may be seen, which are, however, here as elsewhere in the Chaco, extremely shy and difficult to approach. The cry of the Chuña (*Cariama cristata*) is often heard, especially in the early morning, while the sweet plaintive call of *Rhynchotus rufescens* is as characteristic a sound here as it is far south on the Pampa. A conspicuous mammalian inhabitant of the *palmar* is the Venadillo (*Cariacus campestris*), its larger relative the Cierbo (*Cariacus paludosus*) being also common, but frequenting the margins of the swamps.

The islands of monte have naturally their own special fauna. Of birds perhaps the most noticeable, by reason of their harsh cries, are the Charata (*Ortalis canicollis*)—whose extraordinary voice, like the noise of an enormous rattle, heard in the early morning, draws an answer from all the other montes around—and *Aramus scolopaceus*. We often detected the presence of the latter, as we stealthily picked our way along the margin of the monte, by hearing the continuous splashing sound just within it, the bird being busily engaged in breaking the shells of the large gasteropod, *Ampullaria,* which constitutes its favourite food in this region.

Among such surroundings, then, is situated the little collection of huts called Waikthlatingmayalwa, and here Mr. Budgett and I arrived at the beginning of the rainy season—in October. Until the end of the year I was kept busily occupied with my embryological work, but from that time onwards this was rendered impossible by the greatly increased depth of the swamp waters. The whole surrounding country became submerged, and we remained isolated until the middle of February. By this time the waters had subsided considerably, and we were able to make a start for the River Paraguay. All the horses had been carried off by a mysterious epidemic, and although we had ox-carts for our impedimenta, we found the journey most trying. During the rainy season a dense mass of matted vegetation had grown up everywhere over the submerged ground, through which for twelve days' journey we had to force our way. On the twelfth day we crossed a tributary of the Riacho Verde, making rafts of palm-trunks for our baggage; and thence onwards to the Paraguay the country was dry and waterless, the soil parched and dry, affording the greatest contrast possible to the flooded country we had been passing through before. After spending some weeks in the interior of Paraguay we returned to the Chaco and made a second expedition to Waikthlatingmayalwa for the purpose of observing the dry-season habits of the Lepidosirens. Most of the month of May was spent in this work, and thereafter we left finally for the south.

In the appended list of birds I indicate the locality Waikthlatingmayalwa by the initial W.

Fam. I. TURDIDÆ.

1. TURDUS LEUCOMELAS Vieill.
W., Nov. 4, 1896.

2. TURDUS RUFIVENTRIS Vieill.
W., Oct. 31, 1896, May 5, 1897. Frequent.

Fam. II. MUSCICAPIDÆ.

3. POLIOPTILA DUMICOLA (Vieill.).
W. Abundant in open monte.

Fam. III. TROGLODYTIDÆ.

4. DONACOBIUS ATRICAPILLUS (Linn.).
Lengua, *Hēyānīng*.
W., Nov. 4, 12, 13, 1896. In brush by edge of swamp.
Iris golden-yellow; bare patch of skin at side of neck bright orange-yellow; feet hazel; bill black.

Fam. IV. MNIOTILTIDÆ.

5. GEOTHLYPIS VELATA (Vieill.).
Villa Concepcion Island, Oct. 5, 1896.

Fam. V. VIREONIDÆ.

6. CYCLORHIS sp. inc.
W. In monte, Feb. 9, 1897.

Fam. VI. HIRUNDINIDÆ.

7. ATTICORA FUCATA (Temm.).
W. Abundant, Dec. 1896, Jan. 1897.

Fam. VII. TANAGRIDÆ.

8. EUPHONIA CHLOROTICA (Linn.).
Lengua, *Sĕtsĭp.*
W., Feb. 9, 1897.

9. TANAGRA SAYACA Linn.
Villa Concepcion; W., Nov. 4, 1896.
Specimens all very cyanopterous.

10. SALTATOR CÆRULESCENS Vieill.
Villa Concepcion; W.

11. SALTATOR AURANTIIROSTRIS Vieill.
W., Nov. 2, 1896.

Fam. VIII. FRINGILLIDÆ.

12. SPERMOPHILA PALUSTRIS Barrows.
Villa Concepcion.

13. ZONOTRICHIA PILEATA (Bodd.).
Lengua, *Kĭsnĭei.*
Villa Concepcion; W., Nov. 1896.

14. POOSPIZA MELANOLEUCA (D'Orb. et Lafr.).
W., Jan. 1897. Very common in monte.

15. AMMODRAMUS MANIMBE (Licht.).
Coturniculus peruanus, Arg. Ornith. I. p. 60.
W. Common, Jan. 1897.

16. CORYPHOSPINGUS CRISTATUS (Gm.).
Villa Concepcion, Oct. 13, 1896; W., Nov. 10, 1896.

17. PAROARIA CAPITATA (D'Orb. et Lafr.).
Villa Concepcion, common, Oct. 1896; W., Jan. 15, 1897.

Fam. IX. ICTERIDÆ.

18. CASSICUS ALBIROSTRIS Vieill.
Villa Concepcion. Common. Nests in monte on west bank of river (Oct. 5, 1896).

W., Feb. 7, 1897. Frequent.

19. AMBLYCERCUS SOLITARIUS (Vieill.).
Villa Concepcion, nesting in monte on west bank of Paraguay River, Oct. 5, 1896.

20. MOLOTHRUS BONARIENSIS (Gm.).
W. Very common.

21. MOLOTHRUS BADIUS (Vieill.).
W. Abundant.

22. AGELÆUS RUFICAPILLUS Vieill.
W., Nov. 5, 1896. Common about edges of swamp.

23. LEISTES SUPERCILIARIS (Bp.).
Lengua, *Tüskaiyē.*
W., Dec. 25, 1896, Feb. 9, May 6, 1897. Occasional.

24. AMBLYRHAMPHUS HOLOSERICEUS (Scop.).
W., Nov. 1896, Feb. 1897.
Common in swamp amongst the *Peguaho* (*Thalia* sp.).
Has a beautiful and plaintive whistle of two notes, the second prolonged and lower in pitch—*Hī-hū.*

25. ICTERUS PYRRHOPTERUS (Vieill.).
W., Jan. 16, 1897. Common.

Fam. X. CORVIDÆ.

26. CYANOCORAX CHRYSOPS (Vieill.).
Villa Concepcion, in company with *C. cæruleus* in monte on western bank of river.

27. **Cyanocorax cæruleus** (Vieill.).

Villa Concepcion, in monte on western bank of river, along with and nearly as numerous as *C. chrysops.*

W., Jan. 15, 21, 1897. Flocks of seven or eight in monte round station.

Fam. XI. Tyrannidæ.

28. **Tænioptera nengeta** (Linn.).

Villa Concepcion, near Carayá Vuelta, Oct. 23; W., Nov. 2. Many observed sallying from the top twigs of trees after the manner of *T. irupero*.

29. **Tænioptera dominicana** (Vieill.).

W.

30. **Tænioptera irupero** (Vieill.).

In palmar on west bank of Paraguay River opposite Villa Concepcion, Nov. 1896.

W., Oct. 31, Nov. 2, 1897. Many along with *T. nengeta* sallying after insects from the top twigs of trees.

31. **Fluvicola albiventris** (Spix).

Villa Concepcion, Sept. 27; a good many by the water's edge, Sept. 28 : very common about Villa Concepcion, occurring singly or in pairs by every laguna. W., Nov. 1896.

32. **Lichenops perspicillata** (Gm.).

W., May 7.

33. **Machetornis rixosa** (Vieill.).

W., Nov. 12.

34. **Euscarthmus margaritaceiventer** (D'Orb. et Lafr.).

W., Nov. 1896, Jan. 1897. Common in monte round house.

35. **Hapalocercus flaviventris** (D'Orb. et Lafr.).

W., Nov. 28. A specimen shot in the swamp by Mr Budgett.

36. **Pitangus bolivianus** (Lafr.).

Villa Concepcion, Oct. 1896. Very abundant. W., Nov. 1896.

37. Pyrocephalus rubineus (Bodd.).
Villa Concepcion, Oct. 1896; W., Jan. 16, 1897.

38. Myiarchus tyrannulus (Müll.).
Lengua, *Pĭlkō.*
W., Feb. 9, 1897.

39. Empidonomus aurantio-atro-cristatus (D'Orb. et Lafr.)?
Lengua, *Kĭspōbābă.*
Villa Concepcion, Oct. 13, 1896.
W. This Tyrant, which Mr. Sclater thinks is in all probability the species here designated, has a concealed crest of red and orange, and a much stronger bill than *Myiarchus tyrannulus.*

40. Milvulus tyrannus (Linn.).
Villa Concepcion, Oct. 1896. Very common, and in small flocks of up to 15 individuals.
W., Nov. 1896.

Fam. XII. Dendrocolaptidæ.

41. Furnarius rufus (Gm.).
Villa Concepcion. Very common.
W. Very abundant. Building, Nov. 2, 1896.

42. Synallaxis frontalis, Pelz.
W., Jan. 20, 1897.

43. Synallaxis phryganophila (Vieill.).
W. Common. Building, Nov. 1896.

44. Phacelodomus striaticollis (D'Orb. et Lafr.).
Villa Concepcion, Oct. 1896. One of the most conspicuous species there, especially noticeable for the loud characteristic duet of the male and female, which was one of the most familiar bird-sounds, as well as for its huge twig-built nest, which we constantly came across in the open scrub.
W., Nov. 1896. Building. Very common.

45. Xiphocolaptes major (Vieill.).
Lengua, *Siānă.*
Villa Concepcion, Oct. 1896. In monte on western bank

of the River Paraguay. The notes of this bird are very characteristic.

W., Nov. 1896.

46. Picolaptes angustirostris (Vieill.).

Villa Concepcion, Oct. 1896. Very common in monte on western bank of the river.

W., Nov. 1896. Very common.

47. Xiphorhynchus lafresnayanus (D'Orb.).

Lengua, *Yatēbithyē.*

W., Nov. 2.

Fam. XIII. FORMICARIIDÆ.

48. Thamnophilus major, Vieill.

Lengua, *Sālŭ.*

W., Jan. 16, 1897. In monte; common.

The "song" is very characteristic—a series of sharp notes in falling inflexion, becoming more and more rapidly repeated till they pass into a trill, and ending up with a cry somewhat like that of a cat.

49. Thamnophilus radiatus (Vieill.).

Villa Concepcion, Oct. 1896. Amongst brush on island opposite the town.

50. Formicivora strigilata (Max.) ; Scl. B. M. C. B. xv. p. 251.

Lengua, *Kēyŭk.*

W., Feb. 2, 1897, ♀. Amongst low bushes in monte.

The Lenguas believe that the cry of this bird sets their shelters and blankets on fire.

[This fine Ant-Thrush has not been previously recorded so far south. Mr. Kerr brought home a single female specimen.—P. L. S.]

Fam. XIV. CAPRIMULGIDÆ.

51. Podager nacunda (Vieill.).

W., Dec. 10, Dec. 25, Jan. 11. Frequent in small flocks of five or six individuals. During the day they lie close on the bare ground by the margin of the swamp, rising on the approach of an intruder with a soft cry.

52. CHORDILES VIRGINIANUS (Gm.).

W., Jan. 16. (Irides dark brown.) Frequent in monte; lies close on branches of trees.

Fam. XV. PICIDÆ.

53. COLAPTES AGRICOLA (Malh.).

Villa Concepcion. Palmar in Chaco opposite Waikthalatingmayalwa, Dec. 10.

54. LEUCONERPES CANDIDUS (Otto).

Melanerpes candidus Harg. B. M. C. B. xviii. p. 148.

W., Oct. 31, Nov. 6. Singly or in small parties of three or four.

55. MELANERPES CACTORUM (D'Orb. et Lafr.).

Picus cactorum, Arg. Ornith. ii. p. 19.

W., Nov. 4.

56. CELEUS KERRI Harg.

W., Jan. 15. Obtained on several occasions.

57. CAMPEPHILUS BOIÆI (Wagl.).

Campophilus leucopogon Harg. B. M. C. B. xviii. p. 466.

W., Oct. 31, Nov. 11, May 5. Frequent.

Fam. XVI. ALCEDINIDÆ.

58. CERYLE TORQUATA (Linn.).

Villa Concepcion, Sept. 27, 28. Common.

W., Jan. 1897.

59. CERYLE AMAZONA (Lath.).

Villa Concepcion, Sept. 28.

60. CERYLE AMERICANA (Gm.).

Villa Concepcion, Sept. 28.

Not quite so common at Concepcion as the preceding two species.

Fam. XVII. TROGONIDÆ.

61. TROGON SURUCURA Vieill.

Carayá Vuelta, Oct. 22.

Fam. XVIII. Cuculidæ.

62. Coccyzus americanus (Linn.).

W. Common in open monte, Nov., Jan.

63. Diplopterus nævius (Linn.).

Villa Concepcion. Cry very often heard in the Chaco opposite the town. Oct.

64. Crotophaga major Gm.

Villa Concepcion.

65. Crotophaga ani Linn.

Villa Concepcion, Oct. 1896. Very abundant.
W., Nov. 1896.

66. Guira piririgua (Vieill.).

Guira guira Shelley, B. M. C. B. xix. p. 433.
Villa Concepcion, Oct. 1896. Common.
W., Nov. 1896.

Fam. XIX. Rhamphastidæ.

67. Rhamphastos toco Müll.

Villa Concepcion, flock of five, Sept. 28; near Riacho Verde, Oct. 25.

Fam. XX. Psittacidæ.

68. Ara auricollis (Cass.).

Macaws apparently belonging to this species were observed on several occasions near the Riacho Verde, but I was unable to get within shot.

69. Conurus acuticaudatus (Vieill.).

W., Nov. 4.

70. Conurus nenday (Vieill.).

Near Carayá Vuelta, Oct. 23; Oct. 26, common near Riacho Verde.

W., Nov. 1896. Very common in large flocks.

71. Brotogerys chiriri (Vieill.) (?).

Lengua, *Yătŭpkāsĭk*.

W., Jan. 14.

I shot a single specimen of a small Parrot with a yellow patch on the wing-coverts, apparently belonging to this species, but it was unfortunately lost and I am unable now to identify it with certainty.

72. BOLBORHYNCHUS MONACHUS (Bodd.).
W., Oct. 31.

73. CHRYSOTIS ÆSTIVA (Linn.).
Numerous, S. Pedro, Sept. 25. Villa Concepcion. W.; common.

74. PIONUS MAXIMILIANI (Kuhl).
Near W., Feb. 23.

Fam. XXI. BUBONIDÆ.

75. SPEOTYTO CUNICULARIA (Mol.).
I obtained a specimen at Waikthlatingmayalwa, the only one I have ever seen so far north on the Chaco side of the River Paraguay, though this species is quite common on the eastern or Paraguayan side.

76. BUBO VIRGINIANUS (Gm.).
W., Nov. 18. Occasional. Favourite food grasshoppers.

Fam. XXII. FALCONIDÆ.

77. GERANOAËTUS MELANOLEUCUS (Vieill.).
W., Jan. 1897. Occasionally seen soaring.

78. BUSARELLUS NIGRICOLLIS (Lath.).
Villa Concepcion, on Riacho Negro, Oct. 9, 1896.

79. POLYBORUS THARUS (Mol.).
Villa Concepcion; Carayá Vuelta, Oct. 23. W. Very common.

Fam. XXIII. CATHARTIDÆ.

80. CATHARTES AURA (Linn.).
Villa Concepeion.
W. Less common than *C. atratus* and much more solitary in habits. Large numbers seen on Feb. 28th.

81. CATHARTES ATRATUS (Bartram).

Villa Concepcion; W. Very abundant.

Fam. XXIV. PHALACROCORACIDÆ.

82. PHALACROCORAX BRASILIANUS (Gm.).

Phalacrocorax vigua Grant, B. M. C. B. xxvi. p. 378.

Villa Concepcion, Sept. 27. Very many on Riacho Verde, Feb. 25.

W. Very common in the wet season about open water at the edge of swamps; the birds sit on palms or palm-stumps on the watch for fishes. When disturbed they will fly round and round at a small elevation, and it is a favourite sport with the Lenguas to try to bring them down by whirling a stout stick some two feet long amongst them as they pass.

Fam. XXV. PLOTIDÆ.

83. PLOTUS ANHINGA Linn.

Villa Concepcion.

Very common on Rio Paraguay, Oct. 1896. Perches at nightfall on tall trees. During the day seen swimming or resting on dead trees by the water's edge. Often disappears beneath the surface for some time. On trees it will sit with the wings half spread out as if sunning itself.

Fam. XXVI. ARDEIDÆ.

84. ARDEA COCOI Linn.

Villa Concepcion, Sept. 28. Common. W.

85. ARDEA EGRETTA (Wils.).

Villa Concepcion: flock, Oct. 10. W., Dec. 16, several; flock, Dec. 30. Near W., Feb. 16.

On Feb. 25th, when passing a tributary of the Riacho Verde, we found an enormous assemblage of Herons containing several hundreds of individuals, and amongst them this species was the most numerous.

86. ARDEA CANDIDISSIMA (Gm.).

W., Dec. 1, Dec. 16. Riacho Verde, Feb. 25.

87. **Cancroma cochlearia** Linn.

The head of this bird was occasionally seen amongst the objects carried by the Indians in their small network bags.

88. **Syrigma sibilatrix** (Temm.).

Villa Concepcion, Sept. 27, 28; W., Jan. 18.

89. **Pilerodius pileatus** (Bodd.).

Pilerodius pileatus Sharpe, B. M. C. B. xxvi. p. 171.

A white Heron with dark cap, apparently belonging to this species, was seen about the Riacho Verde.

90. **Tigrisoma marmoratum** (Vieill.).

Riacho Verde, Feb. 25.

91. **Ardetta erythromelas** (Vieill.).

W., Dec. 30.

Fam. XXVII. CICONIIDÆ.

92. **Euxenura maguari** (Gm.).

W., Nov.

93. **Mycteria americana** Linn.

Carayá Vuelta, Oct. 22; W., Nov. 5, Dec. 16, flock.

Large flock at Riacho Verde, Feb. 25.

94. **Tantalus loculator** Linn.

On journey, Feb. 28, many; W., large flock, Feb. 8, 1897.

Fam. XXVIII. PLATALEIDÆ.

95. **Theristicus melanopis** (Gm.).

Theristicus caudatus, Arg. Ornith. ii. p. 110.

Theristicus melanopis Salvad. Ibis, 1900, p. 511.

Villa Concepcion, Sept. 30, a flock; Chaco, near Carayá Vuelta, many, Oct. 23; many between Carayá Vuelta and Riacho Verde, Oct. 25; near W., Oct. 29; flock of 20, Nov. 3; many feeding in camp, Dec. 16.

W., common in small flocks.

96. **Harpiprion cærulescens** (Vieill.).

W., Nov. 21, Dec. 1. Frequent.

97. **Phimosus infuscatus** (Licht.).

Villa Concepcion, Oct. 1896.

W., single individuals occasionally seen.

98. Plegadis guarauna (Linn.).
Near W., Oct. 29.

99. Ajaja rosea Reichenb.
Villa Concepcion, Oct. 9. Flock; also singly.

Fam. XXIX. PALAMEDEIDÆ.

100. Chauna cristata (Sw.).
Chauna chavaria, Arg. Ornith. ii. p. 119.
Villa Concepcion, a pair, Oct. 10.
W., Nov. 4. Occasional pairs seen.

Fam. XXX. ANATIDÆ.

101. Cairina moschata (Linn.).
Villa Concepcion; Carayá Vuelta, Oct. 21; Riacho Verde, Oct. 27. Near W., Oct. 29. W., many in swamp, Oct. 30; Dec. 1, many.

Villa Concepcion, Oct. Abundant, singly and in pairs.

W. Very common, the most abundant Duck except *Dendrocycna viduata*.

102. Sarcidiornis carunculata (Illig.).
W., Oct. 31, Nov. 2, Dec. 10.
Frequently seen about the margins of the swamp, singly and in pairs. Extremely shy and difficult to approach.

103. Dendrocycna viduata (Linn.).
Villa Concepcion. Oct. 27, Riacho Verde. Near W., Oct. 29.

W. Abundant. This species was the most common Duck in the neighbourhood of Waikthlatingmayalwa. It breeds in hollow palm-trees, the nest being of decayed wood, lined with down.

104. Dendrocycna fulva (Gm.).
Villa Concepcion, large flock, Sept. 30; flock, Oct. 10.
W., Nov. 27. Frequent.

105. Querquedula brasiliensis (Gm.).
Villa Concepcion; near W., Oct. 29, Nov. 2, Jan. 14.

106. **Querquedula torquata** (Vieill.).
W., Nov. 21, Nov. 27, Dec. 16. Frequent.

107. **Metopiana peposaca** (Vieill.).
W., Dec. 16, a pair.

A few during the latter part of January. Mr. Pride found them much more abundant several days' journey to the westward.

Fam. XXXI. COLUMBIDÆ.

108. **Columba picazuro** Temm.
W., Nov. 5, Dec. 30, Jan. 16. Very common.

109. **Zenaida maculata** (Vieill.).
Villa Concepcion, Oct. 13, 1896.
W., Nov. 2, Jan. 3. Common.

110. **Columbula picui** (Temm.).
W. Very abundant.

111. **Chamæpelia talpacoti** (Temm.).
W., Nov. 11. Abundant.

Fam. XXXII. CRACIDÆ.

112. **Ortalis canicollis** (Wagl.).
Villa Concepcion; near Carayá Vuelta, Oct. 23, Oct. 25.
W. Common in the monte.

Fam. XXXIII. RALLIDÆ.

113. **Aramides ypacaha** (Vieill.).
Villa Concepcion, Oct. 1896. Cries frequently heard on both banks of the Paraguay.
W. Occasionally heard.

Fam. XXXIV. ARAMIDÆ.

114. **Aramus scolopaceus** (Gm.).
Lengua, *Kölü*.
W., Oct. 31, Nov. 1. Very many observed. Many, W., Dec. 30, Jan. 4, Feb. 2.

W. Very frequent. In the morning the birds utter loud cries, answering one another from neighbouring tree-tops. The harshness of the sound gives rise to a curious custom amongst the natives. A Lengua will not eat the flesh of the Kŏlŭ within some time of his wife's confinement; his doing so would cause the young child to cry all night. Nests amongst the coarse grass of the swamp. The young bird is Rail-like in appearance, with uniform dark-brown down.

Fam. XXXV. CARIAMIDÆ.

115. CARIAMA CRISTATA (Linn.).

Lengua, *Tŭmŭmhĭt.*

W., Dec. 13; near W., Feb. 16.

Cries frequently heard in the camp; the bird itself occasionally seen in bare open spaces, running hurriedly away. At night roosts in trees. The favourite food consists of frogs.

Fam. XXXVI. PARRIDÆ.

116. PARRA JACANA (Linn.).

Villa Concepcion, Sept. 28. Very common on the lagunas.

W. Common in patches of open water in the swamp, feeding on the floating carpet of *Pistia* and *Azolla.*

Fam. XXXVII. CHARADRIIDÆ.

117. VANELLUS CAYENNENSIS (Gm.).

Villa Concepcion, Sept. 28, Oct. 10. Very common.

W., Dec. 10. Common.

118. CHARADRIUS DOMINICUS Müller.

W., Nov. 21.

119. ÆGIALITIS COLLARIS (Vieill.).

W. Occasional.

120. HIMANTOPUS BRASILIENSIS Vieill.

W., Jan.

Fam. XXXVIII. SCOLOPACIDÆ.

121. **TOTANUS MELANOLEUCUS** (Gm.).
W., Nov. 21.

122. **ACTITURUS BARTRAMIUS** (Wilson).
W., Nov. 27.

123. **RHYNCHÆA SEMICOLLARIS** (Vieill.).
Lengua, *Waikyĕ askūk* (= cow beast).
W., Jan. Frequent.

Fam. XXXIX. LARIDÆ.

124. **RHYNCHOPS INTERCEDENS** Saunders.
Rhynchops melanura, Arg. Ornith. ii. p. 193.
Rhynchops intercedens Saund. B. M. C. B. xxv. p. 155.
W., Nov. 1896.

One specimen was shot at Waikthlatingmayalwa. I had never before met with this species in the Chaco.

Fam. XL. PODICIPEDIDÆ.

125. **PODILYMBUS PODICEPS** Linn.
Shot by Mr. Pride several days' journey to the westward.

Fam. XLI. TINAMIDÆ.

126. **RHYNCHOTUS RUFESCENS** (Temm.).
Between Carayá Vuelta and Riacho Verde, Oct. 25; W., Dec. 25.

Common in the open palmar about Waikthlatingmayalwa.

Fam. XLII. RHEIDÆ.

127. **RHEA AMERICANA** (Linn.).
A pair between Carayá Vuelta and Riacho Verde, Oct. 23.
Near W., Oct. 29.

Frequent in the Chaco about Waikthlatingmayalwa, but very shy, as in other parts of the district, being much hunted by the Indians. They use the skin of the body to make large bags in which to store their wool for spinning.

XXII.—*An Ornithological Expedition to the White Nile.*

By Harry F. Witherby, F.Z.S.

With the object of making a collection of birds in the district of the White Nile near Khartum, I set out from England on the last day of February, 1900.

At Marseilles I joined my two taxidermists, Messrs. E. H. Saunders and C. F. Camburn, both of whom had already done excellent work in Mr. H. J. Mackinder's expedition to Mount Kenia.

We reached Cairo on March 6th, and our time being very limited, a stay of three days had to suffice for collecting provisions, ammunition, and much necessary information.

The journey from Cairo to Khartum is already so well known, even under the new conditions of the desert railway, that but the briefest description of it is necessary. After twenty-four hours' easy railway travelling we arrived at Assuan, and from Shellal, just above the Cataract, we proceeded by a stern-wheeler to Wady Halfa.

Owing to its being rather late in the season, as well as to the extraordinary low Nile of 1900, this part of the journey was, although comfortable, rather tedious. However, after four days' battling with sandbanks we arrived at Halfa. (On our return we travelled from Halfa to Assuan in three days, but we then had the stream in our favour.) From Halfa we took the last tourist train of the season to Halfya, opposite Khartum. This is most comfortable, and is provided with sleeping- and dining-cars and a restaurateur, who furnishes excellent fare. The heat and dust were at first certainly annoying, but we soon got accustomed to such discomforts, and indeed it is surprising how little dust enters the carriages, since very nearly all the country between Halfa and Abu Hamed might, so to speak, be put through an hourglass.

After Abu Hamed, a few dôm-palms and a thin mimosa-scrub are all that grace the sand.

From Halfa to Halfya by rail is 576 miles. Going up by tourist train this occupied, including stoppages for meals, 34 hours. But coming down in an ordinary train with fewer and shorter stoppages the journey was accomplished in 29 hours—excellent time on a line of 3 feet 6 inches gauge. At Halfya we found a steamer to convey us to Omdurman. At the time of our visit all the government offices, excepting the Sirdar's Palace, were at that place, but a move to Khartum is, I believe, very shortly to be effected. Many government buildings, besides private houses and an hotel, were in process of building at Khartum. We were the recipients of the greatest possible kindness and courtesy from everyone whose aid we sought. The Sirdar, Sir F. Reginald Wingate, granted us permission to travel up the east bank of the White Nile, the west bank at that time being considered unsafe, and, through the agency of Bimbashi F. C. Newall of the Intelligence Department at Omdurman, had most kindly hired camels for us. With the generous help and advice of other officers I was enabled to complete my arrangements quickly, so that on March 21st we started away fully equipped up the White Nile.

I decided to work a small portion of the country thoroughly, and not to attempt merely to "cover ground."

Time and fatigue might have been saved if we had travelled by a steamer up the river, and worked back by land from a given point. However, we adopted the plan of going altogether by land, the object being to get such an idea of the country on our journey up as would enable us to fix upon likely places for camps, and to roughly estimate how many days should be spent in each place on our way back. This plan was so far successful that while thoroughly working the country from our southernmost point to Khartum, we were able to get back to England on June 3rd, or within a day or two of the prearranged time.

Our baggage was carried by camels, and as horses were exceedingly difficult to obtain in Omdurman, we rode donkeys. The Soudan donkey is a miserable beast compared with the Egyptian animal, and the wooden native saddle did not altogether make it a success as a mount.

Camels, though more expensive in every way, would perhaps have been a greater success; but I am convinced that it would have been perfectly practicable, and of course much more comfortable and less fatiguing, to have ridden bicycles on the desert track as far as we went. However, by means of camels and donkeys travelling at about 18 miles a day, we reached a point a few miles south of El Kawa, or about 150 miles direct from Khartum, in nine days. We had intended to reach Abba Island a little further south, but as I was unfortunately attacked with dysentery on the tenth day from Khartum, we halted and made our first collecting-camp.

During my illness, Saunders and Camburn worked zealously at collecting both birds and small mammals at this camp and a second north of El Kawa. At our third, a little north of Ed Duem, I was able to join again in active work. From this point to Khartum we made five collecting-camps. From four to six days spent at each place was all that was needed to work out the surrounding country. Although certain species, as for instance Pigeons and Sand-Grouse, were exceedingly numerous, birds on the whole were so scarce that it was only by the hardest work that two of us who were collecting could keep the third employed in skinning. Of mammals there were scarcely any.

As we found it, in the months of April and May, the east bank of the White Nile from Khartum to 150 miles south of it is exceedingly barren. By the river there is either a strip of short grass or a flat of caked mud deeply cracked in every direction. The country beyond is sometimes abruptly cut off from the river by a high bank of sand, but more often the land gradually rises and supports a narrow belt of trees at no great distance. The trees are small, and almost all are of the acacia family. Beyond this belt, which in no place is more than a mile wide, stretches a scrub of mimosa and other bushes, gradually thinning out until the bare desert is reached. Enormous stretches of it appear to be capable of cultivation, and part of it was covered with stubble of maize and durrha—the first crop that had been grown for many years, we were told. The natives had objected to growing corn for the benefit of their former lord and master the Khalifa.

Owing to the very large amount of land that has gone out of cultivation, and to the time of our visit—the height of the driest of dry seasons—there was very little vegetation. The trees were mostly leafless, the grass was brown and dead, while the crops consisted of little more than a patch of beans here and there or a little cotton. In fact, this period of the year, although the hottest, might be termed the winter in the Soudan. Consequently very few birds were breeding, and notwithstanding many enquiries from Europeans and natives, I was unable to discover when the general breeding-season began. If there is one at all, it is probably after the heavy rains, which commence about the end of June. The river then rises and eventually floods miles of land on each bank. This, with the rains, must entirely alter the character of the country, and provide abundant vegetation, insect-life, and other food for birds.

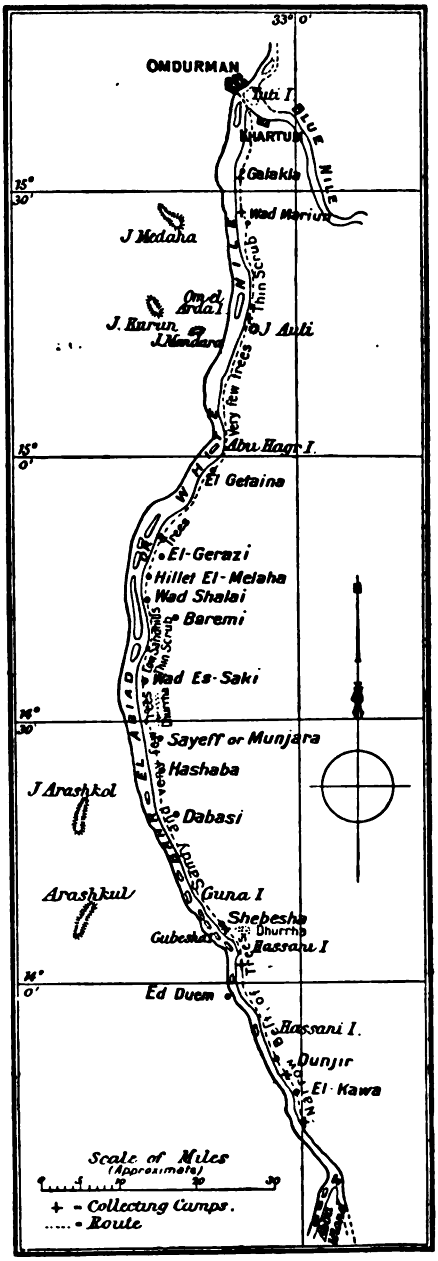
We obtained our specimens, of course, chiefly by the river and amongst the trees and thick bushes. The scrub beyond the belt was rarely dense and seldom contained many birds, while in the desert country still further from the river Sand-Grouse were almost the only species to be found.

Except by their inveterate laziness and decided independence, the natives of these parts gave us little trouble. Neither did they give us any help. They appeared to be singularly unobservant, and to take no notice of the birds and other wild animals around them.

The greatest enemy to collecting was found in the temperature. At Omdurman during April and May the maximum ranged from 100° to 115° Fahrenheit during the day, as registered by thermometers in a screen in the doctors' compound. Besides damaging ammunition, provisions, photographic materials, and so forth, this great heat caused birds to go rotten in three or four hours during the day, while it was never safe to keep anything shot overnight to be skinned in the morning.

Sandstorms were frequent; and collecting or skinning while a sandstorm is raging is hardly possible.

Fig. 28.



MAP OF THE WHITE NILE,
to show Mr. Witherby's route and camps.

As already observed, our time was limited, hence very few large birds were collected, our energies being devoted to diligently searching for smaller and, as we hoped, rarer kinds. How far this hope was justified must be decided by an examination of the following list.

In the preparation of it and in the working out of my collection I am greatly indebted to Mr. Ernst Hartert for most valuable help and advice, for which my heartiest thanks are rendered.

The places mentioned in the list of birds which follows are situated as below :—

Wad Mariun, on the east bank of the White Nile, about 12 miles south of Khartum.

Jebel Auli, on the east bank of the White Nile, about 25 miles south of Khartum.

El Gerazi, on the east bank of the White Nile, about 60 miles south of Khartum.

Shebesha, on the east bank of the White Nile, about 113 miles south of Khartum.

Ed Duem, on the west bank of the White Nile, about 120 miles south of Khartum.

El Kawa, on the east bank of the White Nile, about 140 miles south of Khartum.

The sketch-map (p. 241) will give some idea of our route, which was practically the same in going up and coming down the river. The crosses indicate approximately the positions of our collecting-camps.

Note.—No skins were preserved of those birds which are marked with an asterisk in the following list.

1. Nectarinia metallica Licht.

These charming little Sun-birds were met with from Kawa to Khartum, but were certainly more common in the northern portion of our route. They were generally to be found in small parties searching busily for insects in the sont-trees (*Acacia* sp.). Exceedingly restless, they are continually flirting their tails and agitating their wings to an accompaniment of soft, but singularly commanding, notes. They often hover in the air in preference to perching, when picking some insect off a tree. All the males we obtained, except one, were in various stages of transition from the immature to the mature plumage. A single specimen is greenish grey on the upperside, like the female, but with one or two metallic feathers showing. The centre of the throat is green, but the sides are still yellow. One long tail-feather of this specimen is nearly full-grown, and the white is already abraded; whereas in other examples with but few immature feathers left the central tail-feathers are scarcely longer than the others, and are tipped with white.

Adult and young. Iris dark brown; bill, legs, and feet black.

2. NECTARINIA PULCHELLA (Linn.).

This beautiful Sun-bird was even more common than the preceding species. In habits it is very similar.

Here, again, my specimens are in the transition plumage well described by Dr. Gadow in the Cat. B. Brit. Mus. ix. p. 8.

Young. Iris dark brown; bill, legs, and feet black.

3. ÆGITHALUS PUNCTIFRONS.

Ægithalus punctifrons, Sundev. Œfvers. Vet.-Akad. 1850, p. 129.

Ægithalus punctifrons has been treated by Dr. Gadow (Cat. B. Brit. Mus. viii. p. 70) as a synonym of *Ægithalus capensis*. A comparison of the two birds shows them to be perfectly distinct. *Æ. punctifrons* differs from *Æ. capensis* in being grey on the underparts instead of sulphur-yellow, greenish on the crown instead of grey, and grey on the rump and upper tail-coverts instead of yellowish.

Sennaar is given by Sundevall as the habitat of *Æ. punctifrons*. On the White Nile we observed very few of these birds, and only at two camps—Gerazi and Shebesha, between 60 and 120 miles south of Khartum. They were generally in pairs, and occasionally in company with parties of Sun-birds. Their sprightly and energetic actions—hopping, flitting, and climbing about the trees—in their search for insects were quite Tit-like; but, unlike our Tits, they were silent, we did not hear them utter a note.

Adult. Iris dark brown; bill bluish at base, darkening to brown at tip; legs and feet bluish slate-colour.

4. MOTACILLA FLAVA Linn.

This was the only Wagtail we saw. It was common on all the grassy flats by the river during our journey south. The latest note I have is of one shot on April 11th at Kawa.

Adult. Iris brown; bill dark brown; legs and feet black.

5. ANTHUS CAMPESTRIS (Linn.).

The Tawny Pipit was fairly common from Kawa to Khartum during the whole of our journey. The last we obtained was on May 12th near Khartum. They were to be found as frequently on the sand amongst the scrub as in company with Wagtails on the banks of the river.

Adult. Iris brown; bill brown; legs and feet pale brown.

6. ANTHUS CERVINUS (Pall.).

Only one Red-throated Pipit, which I shot near Khartum on so late a date as May 12, was observed.

Adult. Iris hazel; bill dark brown; legs and feet brown.

7. GALERIDA FLAVA Brehm.

Galerita flava A. E. Brehm, J. f. O. 1854, p. 77.

My specimens agree perfectly with the typical specimens of *G. flava* in the Tring Museum, collected by Brehm in the Khartum district.

A specimen in immature plumage is lighter and much more rufous on the upper parts than the mature bird, and the feathers of the head and mantle are tipped with buffish white, while the wing-coverts and the inner secondaries are broadly margined with the same colour.

These Crested Larks were very common and tame in the cultivated districts near Khartum. As we proceeded south, the birds became scarcer and wilder. At Shebesha, about 100 miles south of Khartum, only a pair here and there was to be met with, not on the cultivated land near the river, but amongst low thorn-bushes where the scrub ended and the desert began. They are very fond of squatting in the shade of a bush, from which they run at the slightest alarm and suddenly take to flight. Every mature bird we obtained was in full moult.

Adult. Iris brown; bill horn-colour; legs and feet pale straw-colour.

8. PYRRHULAUDA MELANAUCHEN (Cab.).

Individuals of this species were plentiful. Along the river-bank wherever there was a grassy flat they were generally to be found in small companies. They were also common amongst the bushes in the sand, where, like the Crested Larks, they took advantage of the shade of some bush, under which they crouched five or six together. They allowed of a near approach, and then almost invariably took a short flight to the shade of some other bush. In sandy country, even when flying, the female is difficult to see, and is soon lost sight of, but the male with his black breast and almost white back is much more conspicuous.

Adult. Iris dark brown; bill bluish white; legs and feet greenish white.

9. PYRRHULAUDA LEUCOTIS (Stanl.).

The young bird, of which we obtained two specimens, is much like the female, but is greyer on the upper parts, showing little rufous colour except on the wing-coverts. The dark centres of the feathers of the back are more marked and the tail-feathers are broadly margined with buff. The under parts resemble those of the female. In habits this species seemed to be identical with the last mentioned, with which it associated. It did not, however, appear to be so numerous. We saw several of them in immature plumage. On May 11th we found a nest of this species in a small scooped-out hollow in the caked mud amongst some very short burnt-up grass near the river. The nest, which was sheltered by a large lump of mud, was a small shallow "cup" composed of dry grass and two or three bits of cotton. Round the "cup" was a compact and neatly-arranged layer of particles of mud, perhaps made by the bird during the formation of the hollow in the caked ground. The nest contained one egg, from which the female flew on our approach.

Adult. Iris dark brown; bill bluish white; legs and feet dull flesh-colour.

10. Emberiza flavigastra Rüpp.

An examination of the fine series of *Emberiza flaviventris* in the British Museum makes it evident that the South-African bird can easily be separated from its more northern representative, the *Emberiza flavigastra* of Rüppell. In the South-African bird the rich orange-buff of the upper breast is more extensive and very much richer in tone than in the northern bird, while the yellow on the lower part of the breast of *E. flaviventris* extends down the sides, whereas in *E. flavigastra* it is confined to a medial line on the belly, the sides and flanks being white up to the middle of the breast. In fact, the breast of *Emberiza flavigastra* is very much like that of *Emberiza poliopleura*. We saw only one specimen of this bird, which was obtained at Kawa.

Adult. Iris hazel; bill, upper mandible horn-colour, lower mandible pale brownish; legs and feet pale brown.

11. Passer rufidorsalis Brehm.

The House-Sparrows of Khartum and the White Nile were considered by Brehm to be worthy of specific distinction. A search through the series of *Passer domesticus* at the British Museum failed to discover any bird approaching my specimens from the White Nile for smallness of size and richness and brightness of colouring, while those from Khartum (A. Brehm coll.) and from Lado (Emin Pasha coll.) at Tring agree perfectly with my birds. The wing of the male of *Passer rufidorsalis* measures only 2¾ inches. When first I saw these Sparrows at Omdurman I was at once struck by their very fine colouring.

12. Passer diffusus (Smith).

We found this Sparrow here and there from Kawa to near Khartum, but it was nowhere plentiful and seemed to prefer thick wood, of which there was but little. The only note we heard it utter was a single piping sound.

Adult. Iris brown; bill blackish brown, lower mandible yellowish at base; legs and feet dark olive-green.

13. PASSER LUTEUS (Licht.).

This species was common and well distributed. Generally to be found in small flocks of twenty or so, it was very wild and frequented the bushes and trees in the more open country. When flying it has a twittering linnet-like note, while in the trees it chirps like a House-Sparrow. We saw an enormous flock of these birds in some tall bushes on the river-bank near Kawa. They were exceedingly restless, rising in clouds from the bushes as we approached and settling again further on, only to rise when we neared them.

Adult. Iris bright hazel; bill horn-colour, becoming dark at tip; legs and feet pale brown.

14. SERINUS LEUCOPYGIUS (Sundev.).

We only met with this species twice: at Shebesha, about 90 miles south of Khartum, and in some acacias near the river at Wad Mariun, within 12 miles of Khartum.

Adult. Iris hazel; bill horn-colour; legs and feet flesh-colour.

15. PYROMELANA FRANCISCANA (Isert).

This species was only observed within a few miles of Khartum, where we found a considerable flock amongst some beans and onions near the river.

My specimens are in brown female plumage. We saw no red-and-black males.

16. ÆDEMOSYNE CANTANS (Gm.).

My birds are moulting from the immature to the mature plumage, and show the following changes:—

OLD PLUMAGE.	NEW PLUMAGE.
Back and secondaries faintly barred with brown.	*Back and secondaries* more strongly barred with brownish grey.
Crown-feathers light-tipped brown, with dark centres.	*Crown-feathers* dark brown with darker centres.

Chin-feathers buffish white.	*Chin-feathers* reddish brown, with white tips, giving a spotted appearance.
Upper breast and flanks buffish white.	*Upper breast and flanks* buffish white, strongly barred with buff.

These little birds were by no means plentiful. They were found in small parties of five or six, generally sitting close together on a twig of some bush or tree near the river. They seemed most inactive, their sole occupation consisting, apparently, of singing *sotto voce.*

Iris hazel; bill light slate-colour; legs and feet bluish pink.

17. Estrilda phœnicotis Swains.

We only saw this bird at our southernmost camp, where it was common.

Iris dark red; bill purple; legs and feet whitish grey.

18. Zonogastris citerior (Strickl.).

Wherever the sont-trees were thick enough to form a wood these birds were generally to be found.

Adult. Iris light brown; bill dull red; legs and feet light brown.

19. Sitagra luteola (Licht.).

Only one specimen obtained.

20. Hyphantornis galbula (Rüpp.).

These Weavers were very common and to be found in every stretch of wooded or bushy country. They were generally in small flocks, and often associated with *Passer luteus.* They have a wheezing little song, sounding more like the creaking and squeaking of two small boughs rubbing together than the voice of a bird. All those that we obtained were in immature plumage.

21. Oriolus galbula Linn.

We obtained a pair of these birds at Shebesha on April 25th. Two or three were also observed at Gerazi on April 30th and May 1st. They were very wild.

22. Lamprotornis porphyropterus Rüpp.

Dr. Sharpe has differentiated the Central-African short-tailed bird, under the name of *L. brevicaudus*, from the longer-tailed Abyssinian form (Ibis, 1897, p. 450). My specimens evidently belong to the Abyssinian species, their tails measuring: ♂ 8″, ♀ 6″·75, ♀ 6″·87.

These birds were plentiful as far as we went south of Duem, but we did not observe them more than ten miles north of that place. Their song is sweet, but they have a perpetual and irritating call-note which is decidedly harsh. We found them in small companies, generally frequenting the tops of the trees; they were very tame.

Adult. Iris pale yellow; bill, legs, and feet black.

23. Spreo pulcher (P. L. S. Müll.).

We only observed these birds near Gerazi and Getaina, between 50 and 60 miles south of Khartum. They were in companies of from six to eight in thick bush. Although very conspicuous, looking dark when perched, and showing a whitish wing-patch when flying, they are nevertheless difficult to shoot owing to their exceedingly shy and crafty nature. When four or five are in a tree, one of them is almost always perched upon the top of it or upon some outside branch, where he can get a good view. Just as you arrive within gunshot, the sentinel gives a warning whistle, so shrill that it sounds almost like a squeak, at which all the flock take a short straight flight to another tree. You creep up again, but the sentinel seems to know the exact range of your gun, as do so many birds. When feeding on the ground, this species is more easily approached, and its gait and action are similar to those of our Starling.

Adult. Iris white; bill, legs, and feet black.

24. Corvus scapulatus Daud.

These Crows were at most points common and tame. They were generally in fairly large flocks, but we saw many pairs and a good many single birds. They make a very hoarse "quaa" rather than a "kaa."

Adult. Iris hazel; bill, legs, and feet black.

25. ***Corvus umbrinus** (Sundev.).

Ravens were seen here and there either singly or in pairs. On the desert railway from Wady Halfa to Abu Hamed there was a Raven or two at every "station." These, and very rarely a Kite, were the only birds to be seen.

The river is a great distance from some of the stations, and it is puzzling to discover where the Ravens drink unless they take their chance at some bucket or tank.

26. **Buchanga afra** (Licht.).

This species was by no means common, but one or two individuals were observed at most points. When the bird is flying overhead or towards the observer, the light grey underside of the primaries shows up conspicuously. It has a peculiar low squeaking little song.

Adult. Iris bright red; bill, legs, and feet black.

27. **Lanius senator** Linn.

Mr. Hartert has lately (Novitates Zoologicæ, vol. vi. December 1899, pp. 416–418) separated this species into four subspecies. My bird agrees with subspecies *d* (*Lanius senator paradoxus* A. E. Brehm) in having the central rectrices pure white at the base.

We only saw one of these birds. This was obtained near Khartum, and it was very wild. When flying away, the white rump at once distinguishes it from *Lanius nubicus*, which it much resembles at a distance, the red head being inconspicuous except at close quarters.

Adult. Iris hazel; bill, legs, and feet black.

28. **Lanius nubicus** Licht.

This Shrike was everywhere common. It was plentiful on May 16th at our last camp near Khartum, and we observed a pair at Korosko on May 23rd. We obtained an immature male on April 8th at Kawa. To me these birds had every appearance of being residents and not migrants. They haunted the same trees day after day, and always seemed thoroughly at home. They showed no sign of nesting, but were continually chasing one another as though mating. The call on these occasions is a harsh, rapidly-uttered "keer,

keer, keer"—a complaining and almost squealing note. They almost invariably perch on a low bough, from which they every now and then dart to the ground, to seize and devour some insect, and then return to their point of observation. They also capture insects in the air and pick them from the tree.

Adult. Iris dark brown; bill dark horn-colour; legs and feet black.

Young. Iris, bill, legs, and feet dark brown.

29. LANIUS ISABELLINUS Ehrenb.

A pair of these birds was obtained near Kawa on April 8th. We observed them nowhere else.

Adult. Iris dark brown; bill whitish at base, tip black; legs and feet black.

30. LANIUS DEALBATUS de Filippi.

Lanius dealbatus de Filippi, Revue et Mag. Zool. 1853, p. 289.

Lanius leuconotus Brehm, Journal für Orn. 1854, p. 147.

My specimens agree perfectly with the type of Brehm's *L. leuconotus* at Tring, as well as with the co-type of *L. dealbatus* in the British Museum. This species was nowhere common, but it was met with at most of our camping-places. We once saw a pair, but the birds were generally met with singly and were rather wild.

Adult. Iris dark brown; bill dark slate-colour; legs and feet blackish brown.

31. NILAUS AFER (Lath.).

We only observed this bird between Jebel Auli and Gerazi, from 25 to 60 miles south of Khartum. In that district it was not uncommon. This was one of the few species found breeding. The sexual organs in the specimens preserved were in an advanced condition, and I watched a pair building a nest on May 1st. It was placed in the fork of a horizontal bough about 30 feet up a sont-tree in a thick wood. Both birds worked at building, bringing material at intervals of a minute, and often less, during the considerable time I watched them. They invariably sat in the nest and turned rapidly round in it as they built in the stuff which they had brought. I saw one of the birds plastering cobwebs on the outside. The male, and possibly the female also, has a quiet piping note of one syllable.

Adult. Iris dark brown; bill black, with base of lower mandible pale slate-colour; legs and feet bluish grey.

32. LANIARIUS ERYTHROGASTER (Cretzschm.).

We only saw four birds of this species, though it is not likely to escape observation. Two were seen at Kawa and two at Shebesha.

Adult. Iris pale straw-colour; bill black; legs and feet dark slate-colour.

33. TELEPHONUS REMIGIALIS Hartl. et Finsch.

This seemed to be a species of local distribution. We only observed it between Shebesha and Gerazi, where it was not uncommon. The actions of this bird are beautiful and fascinating. It leaves a tree with a downward swoop, then glides gently up with tail and wings outspread, singing sweetly as it rises.

It is rather shy, hiding itself on the further side of the bush or tree as soon as it catches sight of an intruder.

Adult. Iris mauve; bill black; legs and feet olive-green.

34. ARGYA ACACIÆ (Licht.).

A few of these birds were frequenting some thick bush near Gerazi, south of which we did not observe them. They were more common nearer Khartum, where, some four or five miles from the river, companies of six or seven inhabited scattered thorn-bushes in the wastes. They shared the desert with the Sand-Grouse, the only other bird to be seen so far from the river as this, unless it was an occasional Pigeon. This Babbler is as often seen on the ground as in a bush, and its tracks, with those of Sand-Grouse, were everywhere plainly impressed upon the hard soil. It is a shy bird, and knows well how to keep its distance, running rapidly along the sand and then taking a short flight, low and straight. The alarm-note is a fairly loud and very shrill "whee," very rapidly uttered some four or five times.

It also has a shrill single cry, which I took to be the call-note. When perched, it continually flirts its tail up and down, like a Wagtail, but with a sharper motion.

Sometimes the bird will hide in a thick bush and allow you to approach it. But on these occasions it always keeps well to the further part of the bush, moving round as you do the same, and then suddenly darting out at the opposite side, so that it is generally well out of range before you know it has left the cover. You may kick or beat the bush, but nothing will move it until it decides to leave, which is almost sure to happen when your attention is occupied by a thorn.

Adult. Iris light brown; bill dull yellow; legs and feet pale green.

35. Crateropus leucocephalus (Cretzschm.).

These birds were common wherever the bush was thick.

They are always to be found in pairs or in small companies of five or six, and, although most amusing to watch, are exceedingly annoying. The slightest thing seems to frighten them, whereupon their alarm takes a curious turn. They do not fly sensibly away, but persistently follow the intruder about and hurl at him a continual stream of the most maddening, rattling alarm-notes. This noise is made up of a long string of "churrs," lasting for half a minute or so at a time, and so rapidly are the notes repeated that the whole sounds much like a policeman's rattle turned with feverish anxiety. Moreover, the birds perform in company, sitting on a bough side by side and touching one another. Should the collector be so unlucky as to rouse five or six of them to their highest pitch of wrathful terror, he may give up all hope of collecting in that neighbourhood for some time. Luckily they are conspicuous birds, and so may be easily seen and avoided.

Adult. Iris bright yellow; bill black; legs and feet greenish grey.

36. Pycnonotus arsinoe (Hempr. et Ehr.).

This Bulbul was everywhere exceedingly common, and we were never without one or two of them in the trees over our camping-place. They were most confiding, and the first species to come down to the tin of water we always put out for the birds near our tents. Their cheery flute-like notes, almost exactly syllabled by the words "tit-willow," although heard on all sides continually, never became wearisome.

Adult. Iris hazel; bill, legs, and feet black.

37. EREMOMELA GRISEO-FLAVA (Heugl.).

My specimens of this beautiful little bird agree with the two examples in the British Museum collected respectively by Heuglin and by Blanford in Abyssinia. I may point out that in Heuglin's figure (Orn. N.-O. Afr. vol. i. tab. xi.) the rump is wrongly coloured yellow. The artist has evidently been led astray by the yellow feathers of the flanks having curled over the rump, as they often do in a skin. In Blanford's figure (Geol. & Zool. Abyss. p. 355, pl. iii. fig. 1) the rump is correctly coloured brown.

We obtained only two examples of this species, both at Shebesha, the only place where we saw it. With so slight an acquaintance with these birds it is not possible to say much of their habits. But I was particularly struck, in watching two of them for some time, by their elegant movements and great activity in the heat of the day. They were hunting for insects in a small sont-tree, and took not the slightest notice of me, although I was standing only five yards away. The foliage was searched so diligently and minutely that I could scarcely believe that any living thing could be left for the next-comer. Small as the tree was, the birds seemed to be in great fear of losing each other, and were continually uttering a soft call-note.

Adult. Iris yellowish brown; bill greenish pink; legs and feet greenish.

38. CAMAROPTERA BREVICAUDATA (Cretzschm.).

My specimens seem to be in immature plumage, being very light-coloured on the breast and throat, and showing none of the ashy-grey colouring of the mature bird on the under parts.

This species was rare. We only observed it at Shebesha, where we obtained two examples.

Iris brown; bill black above, horn-colour below; legs and feet dull flesh-colour.

39. SYLVIELLA BRACHYURA.

Sylvietta brachyura Lafr. Rev. Zool. 1839, p. 258.

Sylviella micrura Sharpe, Cat. B. Brit. Mus. vii. p. 154 (1883) (specimens *a, b, c*).

Sylviella brachyura Grant, Ibis, 1900, p. 155.

My specimens agree perfectly with the western form as separated by Mr. Ogilvie Grant (Ibis, 1900, p. 155) under the name of *S. brachyura*. The throat and eyebrows in this form are rust-coloured, while in its more eastern representative, *S. micrura*, those parts are whitish.

We only found this species at three camps, viz. Duem, Shebesha, and Gerazi; at none of these places was it at all common. Both in habits and note it reminded me very much of our Nuthatch. The call-note is, in fact, a very weak reproduction of that of the bird mentioned. Although I never saw it climb up the trunk of a tree, it was always to be found running about the boughs and twigs, and often hanging on the underside of a branch, in its diligent search for insects. The general colour and the short tail no doubt add somewhat to its superficial likeness to a Nuthatch, although a miniature copy.

Iris hazel; bill dark brown; legs and feet light brown.

40. SPILOPTILA CLAMANS (Temm.).

Spiloptila clamans, Sharpe, Cat. B. Brit. Mus. vii. p. 231.

These beautiful little birds were met with at three of our camping-places, viz. Shebesha, Gerazi, and Jebel Auli. They were in little parties of five or six, and first attracted my attention by their low sweet call-notes, which immediately arrest the listener by their purity and extreme delicacy. They have also a pretty little warbling song, which requires a near hearing and perfect silence to be fully appreciated. Low thick thorn-bushes at the edge of the desert seemed to be their favourite hunting-ground, but they also frequented the acacias on the outskirts of the woods, and were sometimes to be seen hopping about on the sand. They are seldom at rest, and are continually jerking their tails from side to side.

Adult. Iris dark yellow; bill flesh-colour at base, tip black; legs and feet yellowish pink.

41. Cisticola aridula.

Cisticola aridula Witherby, Bull. B. O. C. vol. xi. p. 13 (1900).

This species differs from *C. hindii*, which seems to be its nearest ally, chiefly in its small size and the colour of its upper parts, which are light buff, the feathers being very narrowly streaked with dark brown mesially. Besides having no subterminal bars to the tail-feathers, it differs from *C. cisticola* in its smaller size, in the absence of any rufous tinge on the rump, upper and under tail-coverts, and flanks, and in the colour of the upper parts, already described. It has been suggested to me that this bird might be an albinism, though I do not know of what species it could be an albino. As it inhabits a desert country, I see no more reason for assuming that this sandy-coloured *Cisticola* should be an albinism than that Crested Larks and other desert-coloured birds from the same locality are so, although, unfortunately, I procured only one specimen of my new bird.

Adult male. Iris greenish straw-colour; bill flesh-colour; legs and feet yellowish flesh-colour. Total length about 3·75 inches, culmen 0·44, wing 1·75, tail 1·4, tarsus 0·68.

I found two of these birds in some long brown grass near Gerazi, about 60 miles south of Khartum, on the White Nile. Unfortunately I was only able to obtain one. These were the only *Cisticolæ* seen during the trip.

42. Cercotrichas podobe (P. L. S. Müll.).

Wherever there were trees some of these birds were almost sure to be found frequenting them, so that, even if not very numerous, they were at all events well distributed over the whole district. Like the Rufous Warbler, they have a habit of cocking their tails at right angles to the body and spreading them out, seemingly to show off the white spots. They have a short but mellow song made up of 6 or 7 piping notes. I noticed three varieties of this song, all uttered at intervals by the same bird. The alarm-note is an unmusical *tick-tick-tick.* When the bird is flying the wings appear conspicuously brown.

Adult. Iris brown; bill black; legs and feet dark brown.

43. Acrocephalus palustris (Bechst.).

We obtained only one Marsh-Warbler, at Shebesha on April 23rd.

Adult. Iris light hazel; bill horn-colour; legs and feet yellowish brown.

44. Acrocephalus streperus (Vieill.).

The only Reed-Warbler recognised was obtained at Kawa on April 11th.

Adult. Iris light hazel; bill, upper mandible black, lower yellowish; legs and feet dark brown.

45. Hypolais pallida (Hempr. et Ehr.).

This species was everywhere exceedingly common, from our first to our last camp. Its sharp "chack-chack" call-note and its short, rather rasping song resounded from every tree.

This Warbler and the Lesser Whitethroats, which also swarmed, were a great nuisance to the collector. A thick bushy tree often contained 20 or 30 of these restless little birds. They were too tame to be driven out of it, while to make sure that none of them were of any other species was a tedious and sometimes impossible task. We never saw them in pairs, and there was no sign of their breeding or intending to breed in the district.

Adult. Iris hazel; bill brown; legs and feet pale brown.

46. Phylloscopus trochilus (Linn.).

We saw and obtained the Willow-Warbler at Kawa on April 11th and at Shebesha on April 22nd.

Adult. Iris hazel; bill, legs, and feet brown.

47. Phylloscopus rufus (Bechst.).

The only Chiffchaff identified was one obtained on May 1st at Gerazi.

Adult. Iris hazel; bill brown; legs and feet dark brown.

48. Sylvia nisoria (Bechst.).

A few Barred Warblers were seen, the latest being at Gerazi on May 1st, while one was obtained at Shebesha on April 23rd, and another at Kawa on April 12th.

Adult. Iris pale yellow; bill brown; legs and feet greenish grey.

49. Sylvia curruca (Linn.).

The Lesser Whitethroat was even more numerous than *Hypolais pallida.*

It was quite the exception to find a tree by the river without some of these birds. In fact, they may be said to have swarmed between Kawa and Khartum from the 30th of March to the 16th of May, their numbers on the last date being, to all appearance, just as great as on the first. They were exceedingly fearless. When I was lying ill in camp one became so tame that it lived half the day in my tent. It came for water. Although the river was very near, when I splashed in the water in a bucket by my side the bird would hop on to my arm or the bed, and then when I drew my hand out it would without hesitation suck the drops off my fingertips. This became a regular pastime for me, and I suppose a pleasure for the Whitethroat, all through the heat of the day.

Adult. Iris pale brown; bill, legs, and feet dark slate-colour.

50. Aëdon galactodes (Temm.).

Rufous Warblers were seen at every camp, and in some places they were quite common.

Adult. Iris pale brown; bill brown; legs and feet pale brown.

51. Ruticilla phœnicura (Linn.).

This species was seldom observed. The last noted was a male obtained at Gerazi on May 3rd.

Adult. Iris hazel; bill, legs, and feet black.

52. Monticola saxatilis (Linn.).

The only Rock-Thrush seen was obtained at Kawa on April 9th.

Adult. Iris hazel; bill, legs, and feet black.

53. Saxicola aurita (Temm.).

My specimens are of the form *S. amphileuca* Hempr. et Ehr. (Symb. Phys., Aves, fol. *bb*). This Wheatear was fairly common and well distributed. It was generally met with along the river-bank.

Adult. Iris hazel; bill, legs, and feet black.

54. Saxicola melanoleuca (Güld.).

Black-throated Wheatears appeared to be very rare, being seen at Shebesha only, where we obtained specimens on April 26th.

Adult. Iris hazel; bill, legs, and feet black.

55. Terpsiphone cristata (Gm.).

The only bird of this species seen was an immature male obtained near Khartum on May 15.

Iris deep violet; bill violet-black; legs and feet violet.

56. Clivicola riparia (Linn.).

Sand-Martins were everywhere numerous up to our last day's collecting on May 16th.

Adult. Iris hazel; bill, legs, and feet black.

57. Clivicola rupestris (Scop.).

The only specimen obtained or seen was a solitary bird which haunted the top of Jebel Auli.

Iris dark hazel; bill, legs, and feet black.

58. Hirundo rustica Linn.

Swallows were not nearly so numerous as Sand-Martins. In Omdurman the former were common, and we were assured that they bred regularly in a hut in the doctors' compound.

59. Caprimulgus eximius Temm.

We obtained an *adult male* of this rare and beautiful species at Wad Mariun on May 12th.

So far as I am aware, only four other specimens are known. Three of these were brought home by Rüppell, who gives Sennaar as their habitat in his 'Systematische Uebersicht.' Herr Erckel, Rüppell's collector during his second expedition, informed Mr. Hartert (see Ibis, 1892, p. 279) that the specimens were killed in 1823 or 1824 by Hey, Rüppell's collector during his first voyage, probably near the Bahr el Abiad. Two of these specimens are in the Frankfort Museum and one is at Leyden. A fourth, which is in Mr. Rothschild's Museum at Tring, was obtained by Schimper or Baron Von Müller, and is labelled "Nubia" (see Hartert, 'Novitates Zoologicæ,' vol. i. p. 3). I have compared my example with that at Tring. It is considerably darker and richer in colour, but this is without doubt owing to its being a fresher specimen. There are other small differences, however, which are perhaps worth noting. My bird has on the upper back a conspicuous "saddle" of golden feathers almost devoid of the grey and black bars and spots which are characteristic of the other feathers of the upper parts. This is no doubt due, in some measure, to abrasion. The white tips to the two outer pairs of rectrices are larger, measuring on the outermost pair 38 mm. and on the inner 33 mm. The first four primaries of each wing have white patches extending right across the feathers. In the specimen at Tring these patches do not extend to the outer webs, while in the description of the typical specimen at Frankfort (Hartert, Cat. B. Brit. Mus. xvi. p. 563, 1892) only the first three primaries are mentioned as having the white patch.

Adult. Iris blackish; bill horn-colour, black at tip; legs and feet brownish flesh-colour. Wing 7·25 inches, tail 4·75, tarsus 0·9, culmen 0·5.

The *testes* were considerably enlarged, and the stomach contained a small grasshopper. Although we were always on the look-out for this species, it was not until nearly our last day that we saw and obtained, by a mere chance, this solitary specimen. My journal thus describes the capture, which in its way was somewhat romantic:—I was shooting bats just after sunset. The first that dropped I could not find, so I marked the place where it seemed to fall with a pyramid of mud. Then I went down nearly to the river's edge. The sun's glow had quickly faded, but there was a brilliant moon. I shot another bat, and was looking for it, when a bird like a hawk with a straight flight appeared like a ghost from over the river. There was only dust-shot in the gun, but as it was night I thought the bird must be fairly near, since I could see it. So, as it passed, I fired at it. It did not drop, but flew on, and in ten yards or so was out of sight. I thought no more about it, but went on looking for the bat. Not finding it, I called to the camp, which was near, for a lantern. After further search with the light I gave the bat up. On my way back to the tents I turned off to have another look for the first bat which I had marked by a heap of mud. As I flashed the light on the place, there lay this most beautiful of Goatsuckers. After due jubilation and admiration of the prize, a proceeding which caused our men considerable surprise, Saunders and Camburn said that after I had fired a Goatsucker, probably this one's mate, had hovered round the tents, but was gone before they could get a cartridge into a gun. That night we heard a Goatsucker churring, and we imagined that it did not sound quite like *Scotornis climacurus*, the common Nightjar of the country, but the difference, if any, was so slight as to be impossible to describe.

The country for miles round this camp was singularly bare of trees, while the sand was yellow and not of the earthy colour usual in the district. From 2 to 6 miles inland from the river clumps of long grass and thorn-bushes grew in the dry soil. We tramped far and wide for two days, morning, afternoon, and evening, but never saw or heard a sign of another *C. eximius*.

60. Scotornis climacurus (Vieill.).

Except at our last two camps near Khartum, this Goatsucker was seen or heard throughout the district. In crawling through a thick wood I have several times met with it asleep on the ground in the day-time. It constantly came into the trees over our tents and "churred" at all times of the night. Judging from memory, its notes are much more highly pitched, and the vibrations more rapid, than those of our Nightjar. In fact, the sound might well proceed from an enormous locust. When flying, the bird is exceedingly beautiful; it looks like a great butterfly as it suddenly rises from the ground, gives a few rapid flaps, and then floats along on outstretched wings, displaying the striking striped plumage of the upper parts.

Adult. Iris dark brown; bill reddish brown, black at tip; legs and feet pinkish brown.

61. CORACIAS ABYSSINICUS Bodd.

This Roller was fairly evenly distributed in small numbers throughout the country. Solitary birds were generally seen, and very rarely a pair. They were always wild, and were very fond of perching on the tops of the acacia trees.

Adult. Iris dark brown; bill black; legs and feet yellowish slate-colour.

62. MEROPS PUSILLUS P. L. S. Müll.

My specimens are of the form with a blue spot behind the eye, lately separated under the subspecific name of *M. p. ocularis* by Prof. Reichenow (see 'Ornithologische Monatsberichte,' June 1900, No. 6, p. 86). We only noticed these beautiful little Bee-eaters at two camps, viz. Kawa and Shebesha, at both of which they were fairly common. Like *Merops apiaster*, they are continually taking upward gliding flights and then returning to perch on some bough. I once saw an individual dart into the air and catch one of the large black hornets which are so common. Returning to its perch, the bird passed the insect to and fro through its beak, and having thus crushed it thoroughly, swallowed it whole.

Adult. Iris crimson; bill black; legs and feet brownish grey.

63. MEROPS APIASTER Linn.

We only saw one specimen, which was the last bird we collected near Khartum on May 16th.

Adult. Iris crimson; bill black; legs and feet brownish black.

64. MEROPS VIRIDISSIMUS Swains.

Mr. Hartert has pointed out to me that in Indian birds of this species the throat is blue, whereas in African specimens it is always green. My specimens vary considerably, evidently owing to some change of plumage, probably from the immature to the mature state. Two have the tail-feathers fully developed and a distinct black pectoral band, while two others have no long tail-feathers and an ill-defined pectoral band, shewing scarcely any black. We found this Bee-eater at one camp only, viz. Gerazi.

It utters a soft "chee," repeated a varying number of times in succession.

Adult. Iris brown; bill black; legs and feet greyish black.

65. Merops persicus Pall.

Only seen at Wad Mariun, near Khartum.

Adult. Iris crimson; bill black; legs and feet brown.

66. Upupa epops Linn.

A few were seen at intervals throughout our journey, the latest noted being on May 13th.

Adult. Iris hazel; bill light brown at base, darkening to almost black at tip; legs and feet bluish grey.

67. Lophoceros nasutus (Linn.).

A few of these Hornbills were observed between Gerazi and Wad Mariun, sometimes singly and sometimes in small parties of four or five. They were rather wild; the flight, in long sweeps up and down, is stronger and straighter than that of the next species. We found them as frequently where trees were thick as in the more open country, and they were sometimes feeding on the ground.

The note, a long drawn-out whistle ("whee-ou"), is loud and clear, and can be heard at a considerable distance.

Adult. Iris dark brown; bill and rudimentary casque black, with a creamy-white patch on the basal half of the upper mandible and three uneven whitish stripes on the lower mandible; legs and feet brownish black.

68. Lophoceros erythrorhynchus (Temm.).

To be seen in some places quite commonly, wherever the trees were fairly thick. They will generally allow of a near approach, although they watch the intruder carefully. The flight is decidedly ungainly. Starting out of a tree with a rush, they rise quickly and appear to be going some distance. The pace, however, soon slackens, and the bird dips as though it were being dragged down by the weight of its bill, while it soon alights in the nearest tree. The note is rather like a shriek, with a faint suspicion of music in it.

Adult. Iris brown; bill—upper mandible dark red, yellow at base; lower mandible dark red at tip, black in middle, yellow at base; legs and feet black; naked skin round eyes purplish; bare patches on each side of throat reddish.

69. Ceryle rudis (Linn.).

The only Kingfisher we saw, and by no means numerous. At Omdurman it seemed commoner than elsewhere. A large proportion of the repeated downward swoops of this bird are unsuccessful, as far as any capture goes.

70. Colius macrurus (Linn.).

Colies of this species were everywhere common. They kept to the thickest trees and were always in company, four or five being generally together. When alarmed, these birds hide themselves in the densest part of a tree, through which they climb and creep. Arrived at the far side of it, they rush out, uttering a piping note, which denotes but the faintest suggestion of alarm. Much the same note, but softer and more plaintive, and uttered in a less hurried way, forms the call. The flight is fairly straight and rather heavy. On April 23rd I saw one of these birds collecting stuff in its bill, as though for building, but no nest was to be found, and the birds seemed to have finished breeding and to be in family parties.

Adult. Iris red; bill—upper mandible pinkish red, with black tip, lower mandible black; legs and feet purple; orbits bare, lake-red.

71. Cuculus canorus Linn.

We saw a Cuckoo at Wad Mariun on May 13th, one of our last days collecting. There were a good many at Gerazi at the beginning of May, but we never heard them utter a sound. A bird that we shot was in adult plumage.

72. Melanobucco vieilloti (Leach).

Only observed at Kawa.

Adult. Iris dark brown; bill, legs, and feet black.

73. Trachyphonus margaritatus (Rüpp.).

We only observed this species between Shebesha and Jebel Auli. In this district it was met with occasionally, attracting attention by its habit of sitting on the top of a tree and uttering a fine clear piping cry. It also gives vent to a loud and somewhat harsh "cheouw," which must, I think, be an alarm-note.

Adult. Iris hazel; bill dark pink; legs and feet dark slate-colour.

74. Campothera nubica (Gm.).

The bills of my specimens are longer and stouter than in those from Abyssinia in the Tring collection. Although we never saw a Woodpecker's hole in any tree, the birds were not uncommon, this species being the most numerous. They have a very "bunched-up" appearance when on a trunk. On April 20th I watched two females chasing each other vigorously and calling harshly, the reason for which conduct was not apparent.

Adult. Iris bright red; bill horn-colour; legs and feet dark olive-green.

75. Iyngipicus obsoletus (Wagl.).

Only one specimen observed. This was obtained at Gerazi on April 30th.

Adult. Iris light red; bill horn-colour; legs and feet very dark olive-green.

76. Mesopicus goertan (P. L. S. Müll.).

This species, which is much shyer than *Campothera nubica*, was uncommon, two or three being observed at Shebesha and Gerazi, and one near Jebel Auli, where there are very few trees of any size.

Adult. Iris dark brown; bill light slate-colour at base, dark at tip; legs and feet slate-colour.

77. TURTUR COMMUNIS Selby.

We did not observe the Common Turtle-Dove south of Gerazi, but thence northwards it was numerous. Large numbers frequented some trees within two miles of Khartum on our way up on March 21st, and there was a fairly large flock at the same spot on our return on May 15th, when we obtained specimens.

We did not observe *Turtur arenicola.*

Adult. Iris hazel; bill black; legs and feet purplish red.

78. TURTUR AMBIGUUS Boc.

By the kindness of Mr. Hartert, who obtained the loan of the type of this species from Prof. Barboza du Bocage in Lisbon, I have been able to compare my specimens and others with it.

My four examples and those from Khartum in the Brehm collection (now at Tring) have the wings a little longer, and the white tips to the rectrices considerably wider, than those of the type.

It is curious that all the specimens in the British Museum (viz. two from Tette on the Zambesi, one from the Sobat, and one from the Blue Nile) agree with the type from Benguela so far as the white tips to the rectrices are concerned. Their wings vary slightly in length, but this is entirely due, I consider, to abrasion.

Exceedingly abundant, except within 20 miles of Khartum, where it became rarer. This species and the next, with which it consorts, formed one of our staple dishes. In the south of our route they were so common and tame, and clustered so thickly on certain trees, that on several occasions we killed 14 and 16 at a "family" shot, while 5 or 6 was no unusual return for a single cartridge. All the Pigeons we observed were great drinkers, and flock after flock used to rush down to the river regularly morning and evening. Returning from it in the evening, they often rose to a great height, and circling round, suddenly plunged down headlong, like our Wood-Pigeons, into the trees used as roosting-places. The ground under their perches is often white with droppings.

Pigeons were a great nuisance to us while collecting, as almost every tree contained them, and their sudden noisy exit when we approached often disturbed rarer game. The note of this species is generally prefaced by a harsh "cowoo," a vulgar drawn-out sound, followed by a soft and pleasing "hoo," repeated an indefinite number of times.

On April 24th, near Shebesha, I found a bird of this species sitting on two incubated eggs in a nest made of some 20 sticks, placed low down in a cactus plant growing upon a small acacia. It was the only nest of this species seen.

Adult. Iris dark yellow; bill black; legs and feet purplish red.

79. TURTUR ROSEOGRISEUS (Sundev.).

This species was perhaps not quite so abundant as the preceding. Its light colour and smaller size make it very easy to distinguish. In habits it is very similar to *T. ambiguus.*

Adult. Iris bright red; bill black; legs and feet purplish red.

80. TURTUR SENEGALENSIS (Linn.).

Also very common, but not so numerous as the preceding species. We did not observe it north of Jebel Auli.

Young birds only just able to fly were obtained on several occasions, but no nests were found.

Adult. Iris hazel; bill black; legs and feet purplish.

81. CHALCOPELIA AFRA (Linn.).

A single bird shot at our most southern camp on March 30th was the only specimen observed.

Adult. Iris dark brown; bill, legs, and feet black.

82. ŒNA CAPENSIS (Linn.).

This species was, without doubt, the most evenly distributed of any. It was everywhere common from Kawa to Khartum. It is more often found on the ground and in low bushes than in trees. The shrubs near the river were often full of these birds, sitting in rows doing nothing.

They have a straight quick flight. On April 22nd I found a nest of this species at the edge of a thick bush about 5 feet from the ground. The fabric, slenderly made of a few sticks, was round in shape and about 3½ inches in diameter. It contained two eggs of a light-brown colour.

Another nest, placed on the stump of a small tree about 3 feet from the ground, contained eggs on May 2nd. These hatched the next day, and on May 5th the young were lightly covered with whitish down. I spent a long time trying to photograph the old bird on this nest. Although my camera was only some four yards away from it, the hen bird visited her young twice in about an hour. She was very tame, and looked very pretty while settling on her progeny, and I hoped that I had obtained good portraits of her; but unfortunately these, and, indeed, all my negatives, are failures, owing to an irremediable "fogging" caused by the heat.

Adult. Iris dark brown; bill—of ♂ purple at base, bright yellow at tip, of ♀ dark brown; legs and feet purplish red.

83. STRIX FLAMMEA Linn.

Strix flammea maculata Brehm, Naum. 1855, p. 270.

My specimen agrees with those at Tring collected by Brehm and labelled "Khartum." They are rather dark on the back and a good deal spotted on the breast.

The only specimen we observed lived in a small tunnel in the face of a cliff on Jebel Auli. This had the appearance of a nesting-place, but the hole contained only a large number of pellets, and the bird we shot proved to be solitary.

Adult. Iris dark hazel; bill white; claws blue-black.

84. SCOPS LEUCOTIS (Temm.).

This beautiful little Owl was first observed some ten miles north of Jebel Auli.

We were camped at mid-day when on the march, and while searching through a small patch of dense wood, an apparent swelling on the trunk of a thick tree attracted my attention. I looked carefully at it, and had just come to the conclusion that it was only a bough broken off short, when I thought I saw two ears. Still I could not make out the form of a bird. I went back for my companions, and we all examined the "lump" with our glasses, but so thick was the tree, and so exactly did the outline resemble a stump, that it was some time before we decided that it was an Owl. We fired at it, and down fell two Owls, while another flew out of the tree. We obtained two others at Wad Mariun.

Adult. Iris bright orange; bill greenish white; claws light brown.

85. Bubo lacteus (Temm.).

One bird obtained a little north of Duem was the only specimen seen.

Adult. Iris dark brown; eyelids pale yellowish blue; bill milky white, becoming bluish at the base.

86. Falco tanypterus Schl.

Fairly frequent from Duem southwards, but not often seen north of that place. We witnessed an interesting chase near Shebesha. When we were riding along by the river, a small bird dashed over our heads at a terrific pace. Two Falcons, presumably of this species, came rushing through the air side by side about 20 yards behind it. They had not gone 50 yards beyond us, when one of them gave a slight downward swoop and then flew slowly on, while the other checked his flight, turned round, and flew away in the direction from which both had come. We thought that they had given up the chase, as, although the quarry had disappeared, it seemed impossible from the pace at which it was flying that the Falcons could have overtaken it in so short a distance and with so little effort. However, the first bird soon alighted on the ground, and then we saw that it had indeed captured its prey. What species it was we could not discover, as the Falcon kept a respectful distance and could not be induced to surrender the quarry.

Adult. Iris dark brown; bill yellowish white at base, black at tip; cere greenish yellow; legs and feet lemon-yellow.

87. ***Milvus ægyptius** (Gm.).

Fairly common and very bold. It would often swoop down into the middle of the camp and carry off some tit-bit. A good many frequent the town of Omdurman.

88. ***Haliaëtus vocifer** (Daud.).

This fine Eagle was frequently met with, either perched in some tree near the river, or sitting on a bed of "oysters" (*Ætheria*). It struck me as a very inactive bird, and its white "hood" always made it conspicuous.

The body of one which we shot was cooked and eaten with considerable relish by our men two hours after the bird had been killed.

Adult. Iris granulated brown; bill pale yellow at base, horn-colour at tip; cere and orbits very pale yellow; legs and feet white.

89. ***Helotarsus ecaudatus** (Daud.).

This striking bird was only occasionally seen. Although much more shy than the preceding species, on one occasion it allowed us to approach within 30 yards of the tree in which it was sitting. The brilliant crimson bill and feet make a striking contrast to the dark plumage. When flying overhead, the light grey under the wings has a well-defined outline, even at a considerable distance.

90. **Melierax polyzonus** (Rüpp.).

Fairly common. I once saw it sitting sleepily in an acacia within a few feet of a Little Bittern. It has a loud squealing note.

Adult. Iris dark brown; bill and cere pale vermilion-red, with tips of both mandibles black; legs and feet vermilion-red.

91. **Circus macrurus** (Gm.).

Not numerous.

Adult. Iris pale golden colour; bill black; legs and feet bright yellow.

92. ***Gyps rueppelli** (Brehm).

We did not shoot any Vultures, but we saw here and there parties of three to six birds which looked exactly like *Gyps fulvus*, but were probably young examples of this species.

93. *Neophron percnopterus (Linn.).

Fairly common and well distributed, but nowhere seen in large numbers. There were a good many in Omdurman.

94. Ibis æthiopica (Lath.).

Fairly common on the whole, the Sacred Ibis was distributed in pairs or small parties of five or six here and there to within a few miles of Khartum. They were very tame, allowing us to approach within 20 yards of them as they strutted about on the short grass by the river. When flying away, the bird looks very white, the wings being but narrowly margined with black, while the black scapulars, drooping and conspicuous when the bird is stationary, are scarcely noticed in the former case. Seen from underneath or when flying towards the observer, the lines of bare skin on the underside of the wings are striking, and have the appearance of bloodstains.

Adult. Iris dark marble-brown; bill, head, neck, legs, and feet jet-black; bare skin under the wings bright vermilion.

95. *Plegadis falcinellus (Linn.).

Distributed along the river in small numbers, but sometimes in considerable flocks on the "oyster-beds."

96. *Hagedashia hagedash (Lath.).

Uncommon and generally solitary, but sometimes consorting with the preceding species, from which it can only be distinguished, at a distance, by its much larger size.

97. *Platalea alba Scop.

Fairly common in small flocks wading about the edge of the river. We saw no black-legged Spoonbills.

98. Herodias ralloides (Scop.).

The Squacco Heron was distributed in small numbers along the river. Either the birds were single, or two or three were together, but they were never in sufficient numbers to form a flock.

99. HERODIAS BUBULCUS (Aud.).

This Heron was more uncommon than the preceding. We observed a few single birds by the river's edge, but never near cattle.

Adult. Iris bright yellow; bill pinkish yellow; legs and feet yellowish flesh-colour.

100. *HERODIAS ALBA (Linn.).

We observed examples of this species only on one occasion, near Gerazi on April 28th.

101. *HERODIAS GARZETTA (Linn.).

A few seen here and there.

102. *ARDEA CINEREA Linn.

103. *ARDEA PURPUREA Linn.

These Herons were seen from time to time in fair numbers.

104. ARDETTA MINUTA (Linn.).

Little Bitterns were on many occasions seen feeding at the edge of the river during the day-time. In two or three places small flocks of these birds were observed perched high up in the acacia trees. When we approached they flew up and circled in the air, calling loudly for some time before settling again. We often came across single individuals in the trees, but these generally stretched up their heads and extended their bodies, and so remained immovable in fancied security. Once I fired over 20 shots at Pigeons from one spot, while in an acacia 30 yards away a Little Bittern was perched in this position and never moved in the slightest.

The note, which we only heard when the bird was on the wing, is a low-toned short "quer," jerkily uttered. This note is sometimes prefaced by a higher-pitched but also short "quee."

105. *CICONIA ALBA Bechst.

White Storks were common on our way up the river. I have no record of them on our return.

106. *CICONIA NIGRA (Linn.).

A few seen. The last of which I have a note was one shot on May 11th near Jebel Auli.

107. *ANASTOMUS LAMELLIGERUS Temm.

These conspicuous birds were to be seen all along the river to within a few miles of Khartum. They were generally single and wild, but wherever there was an "oyster-bed" a fair number of them might be seen gathered together. The whitish colour of the basal portion of the bill is often visible at a considerable distance.

108. *LEPTOPTILUS CRUMENIFERUS (Cuv.).

These revolting-looking birds were fairly common in small companies from Kawa to within a few miles of Khartum. They were always to be found on the "oyster-beds," and were very tame.

109. *PSEUDOTANTALUS IBIS (Linn.).

Fairly common.

110. *PHALACROCORAX AFRICANUS (Gm.).

Cormorants, presumed to be of this species, were often seen either flying low over the river or sitting on some snag or "oyster-bed."

111. *PELECANUS ONOCROTALUS Linn.

Pelicans were seen at many points from Khartum southwards, either sitting huddled up on some sandbank or skimming over the water. We saw several large flocks. Two of these, each composed of some 1000 birds, I approached until I was within 70 yards. They were standing in the shallow water at the river's edge. Some were engaged in pruning their rosy-white plumage, some in washing their yellow pouches, while others were sleeping.

I watched them a long time with my binoculars, and then tried to creep up closer, but they gradually edged away until the water floated them off, and then, when I approached still nearer, they all rose at once. For so large and heavy a bird their flight struck me as peculiarly graceful. After a few rapid powerful flaps the wings are outstretched, and the bird skims swiftly along within a foot of the water for some hundred yards in a straight line, then curving slightly upwards, it flaps its wings again and takes another long floating flight.

112. HYDROCHELIDON LEUCOPTERA (Schinz).

This beautiful species was especially numerous near Khartum in May. A great number were then frequenting the river. We often saw them flying over the land in company with *Glareola pratincola*. While the Pratincoles caught insects in the air, the Terns were hovering over the beans and grass, or darting down to pick some insect off the ground.

Adult. Iris dark brown; bill black; legs and feet dark crimson.

113. *HYDROCHELIDON HYBRIDA (Pall.).

114. *HYDROCHELIDON NIGRA (Linn.).

Both these Terns were frequently seen flying and hovering about the river. Of the two the Whiskered Tern was the commoner.

115. STERNA ANGLICA Mont.

A Gull-billed Tern was one of the first birds observed as we were crossing the river on our arrival at Omdurman. We saw individuals fairly frequently afterwards and shot one during our last day in camp.

116. *LARUS FUSCUS Linn.

We saw small flocks of Black-backed Gulls, which had every appearance of being of this species, flying down the river northwards on March 7th and on April 28th.

117. *PHŒNICOPTERUS ROSEUS Pall.

Only a few seen here and there on sandbanks in the river.

118. *CHENALOPEX ÆGYPTIACA (Briss.).

Everywhere common. Although generally in flocks of varying numbers, by the end of April some were mated and the males were courting industriously. We several times saw pairs that seemed to be breeding, but we never found a nest. Although these Geese are shy, probably because everyone shoots at them, the natives have considerable difficulty in driving them from their beans, of which the birds are very fond. They seem to know the difference between an armed and an unarmed man.

119. *Plectropterus rueppelli Sclat.

Spur-winged Geese were met with in fair numbers all along the river. They were still more shy than the Egyptian Geese, and were very difficult to shoot. We never saw a large flock, and often two or three were in company with a flock of *Chenalopex ægyptiaca*.

120. *Dafila acuta (Linn.).

A small flock seen near Duem on March 26th.

121. *Dendrocycna viduata (Linn.).

We did not notice this Duck until towards the end of April. From Shebesha, where we arrived on our way down the river on April 23rd, to Khartum it was common in small flocks at the edge of the river. It is very good for food.

122. Pteroclurus exustus (Temm.).

Mr. Hartert has separated (Nov. Zool. vol. vii. p. 28, March 1900) the true North-eastern and Central African *P. exustus*, which is always strongly marked with dark olive-brown on the back, from the Somaliland bird, which, besides being smaller, is of a pale sandy colour on the back. This form Mr. Hartert calls *Pterocles exustus somalicus*, and my bird from the White Nile exactly agrees with it. Thus the Sand-Grouse of the portion of the White Nile district extending from Khartum to 160 miles south, instead of agreeing with the birds to the north and to the south of it, is of the same form as is to be found far to the eastward.

These Sand-Grouse were met with everywhere in astonishing numbers. Their flights from the desert to the river each morning at certain spots were exceedingly regular. So large were the flocks in certain places, that the incessant stream of small parties rushing down to the water lasted for over an hour. On several broad grassy flats near the river a large number of Sand-Grouse were to be found all day, and they seemed to live and feed there in preference to the arid tracts. But at these spots there were always other individuals, which came down from the desert in the usual way to drink in the morning, and flew back again at once, and others again which came from the desert and after their drink settled down upon the grassy flat. We saw no signs of Sand-Grouse nesting during our stay, but on May 13th, about three miles from the river, I saw a pair of this species accompanied by a bird which, though I may have been mistaken, I took for a young one. It was only about half the size of the others, but flew not less strongly and seemed fully feathered. Unfortunately I was unable to get near enough to shoot it.

123. **PterocluRus senegallus** (Linn.).

This species, easily distinguished, even at a considerable distance, by its larger size, was rare in comparison with *P. exustus*, but it was well distributed in small numbers from Kawa to Khartum.

124. ***Numida ptilorhyncha** Licht.

Guinea-fowl, presumably of this species, were common about Kawa. Unfortunately I was ill at this camp, and my collectors did not obtain a specimen.

125. **Eupodotis arabs** (Linn.).

Only one Bustard was observed, near Duem on March 21st. This bird was squatting on its "haunches" at the river's edge to drink, and I shot it with a rifle at a distance of about 100 yards as it ran away. It made no attempt to fly, although I missed it the first time. Its wings were in perfect plumage.

126. **Balearica pavonina** (Linn.).

Crowned Cranes were by no means common, but a few were seen here and there feeding on the land near the river. They were very tame, and often allowed us to approach to within 20 yards of them. At one of our camps, not far from Khartum, a single bird used to come regularly every evening at sunset to roost on the top of a small acacia, which it would leave just as regularly as soon as it got light in the morning.

Adult. Iris white; bill, legs, and feet black; bare patches on the sides of the head very pale bluish white; pouch reddish.

127. *GRUS CINEREA Bechst.

A fair number of Cranes were seen, but they were always too wild to shoot.

128. HOPLOPTERUS SPINOSUS (Linn.).

Fairly common and well distributed along the river-bank.

Adult. Iris crimson; bill, legs, and feet black.

129. OCTHODROMUS ASIATICUS (Pall.).

Only observed at Kawa, where it was common.

Adult. Iris dark brown; bill black; legs and feet dark grey.

130. *ÆGIALITIS HIATICULA (Linn.).

Fairly common along the river. The last bird seen—apparently of this species—was on May 14th.

131. *TRINGA ALPINA Linn.

A few seen by the river, the latest date noted being May 9th.

132. *TRINGA MINUTA Leisler.

A good many seen from March 24th to May 9th.

133. MACHETES PUGNAX (Linn.).

A fair number observed. Latest date May 3rd.

134. *LIMOSA BELGICA (Gm.).

Fairly common. Latest date May 9th.

135. *TOTANUS CALIDRIS (Linn.).

A few seen. Latest date May 14th.

136. *NUMENIUS ARQUATA (Linn.).

Not common.

137. *HIMANTOPUS CANDIDUS Bonn.

Fairly common.

138. ŒDICNEMUS SENEGALENSIS Swains.

I saw a pair of these birds just outside Khartum, and we observed a few here and there up the river. They were always in pairs, never flew far, and evidently considered themselves safe when lying flat on the ground.

Adult. Iris pale greenish yellow; bill greenish yellow at base, black at tip; legs and feet greenish yellow.

139. Pluvianus ægyptius (Linn.).

These beautiful birds were common along the river-bank. They were in pairs and were very noisy when disturbed. Von Heuglin considered that this species bred in the Soudan after the rainy season, but those which we shot were evidently doing so, one female having a fully formed egg in the oviduct. We never saw them near the crocodiles!

140. *Cursorius gallicus Gm.

These birds were fairly common along the river-bank in small parties of from four to eight.

141. *Glareola pratincola (Linn.).

Between Khartum and 30 miles to the south of it several flocks of Pratincoles were seen during the first fortnight in May.

XXIII.—*On the Birds collected by Mr. J. J. Harrison between Zeila and Lakes Rudolf and Baringo, Eastern Africa.* By W. R. Ogilvie Grant. *With an Introduction by* J. J. Harrison.

(Plate VII.)

[On November 5th, 1899, Mr. A. E. Butter, Mr. P. H. Powell-Cotton, Mr. W. F. Whitehouse, and I landed at Aden *en route* for Zeila on the Somali coast. Our hope was to combine sport and survey-work, and if possible to make our way south-westwards by Lake Rudolf to the White Nile and thence to Khartum. We had with us Mr. Donald Clarke, a first-rate practical surveyor, and Mr. Perks as taxidermist. Though my friends were mainly occupied with the pursuit of big game, my thanks are due to them for bringing into camp various birds to add to the collection in which I was interested. While at Zeila I procured, among other birds, a Nightjar (*Caprimulgus unwini*)—a pale Asiatic form which had not been previously met with in Africa. On leaving the coast, our caravan consisted of about 80 camels and 63 Somalis picked from four different tribes, all under a splendid head-man, Mohamed Hassen.

Directly we started we found out what a terribly hard task lay before us. Two years of unprecedented drought had not only dried up every stream, but killed half the bush and scrub; so that our poor pack-animals had a bad time of it. Pushing quickly along, we passed Dadab, Hensau, Lasmau, and Somadu, and arrived at Aruwini, where we found a little water and collected a few birds. We met with hundreds of Guinea-fowl, and Dik-Diks were also plentiful; while at Hensau hares were so numerous that we carried out a hare-drive. The country was hard to travel over, being mostly formed by volcanic ranges. At Somadu, at an elevation of 3500 feet, it was very cold. Bya Kaboba, our next halt, is the first Abyssinian outpost; and we received a grand salute from the whole garrison, consisting of five men. The whole district here was full of gumbôt-bush, a deadly poison to camels, as we found to our cost.

On our way to Gildessa I secured a fully-adult Bateleur Eagle and a very fine Vulture (*Otogyps auricularis*), measuring 9 feet 2 inches between the tips of the wings and standing 42 inches high.

On arriving at Gildessa itself we found much more bird-life; and our camp was invaded by the lovely dark-blue Starling *Lamprocolius chalybeus*, with a plumage that shone like diamonds in the sunlight. Here we were able to purchase some riding-mules, a merciful relief to our thin and tired ponies.

Passing Garrara, where, on one of the lofty volcanic ranges, I was lucky enough to bag a Larger Kudu and a Lesser Kudu on the same day, we came across quantities of monkeys, all the hills seeming to be full of them. We then moved past Ortha and Ulfulla, through a wretched country, reaching the banks of the Herrer on December 5th. In the evening the air was darkened by countless flocks of Sand-Grouse coming to drink, the flight only lasting about fifteen minutes. At this place we found the only uncivil native met with on the trip—an independent but powerful chieftain called Toombaccho. This worthy caused us much trouble, especially by looting some of the grain-camels in the rear of our caravan. On Sunday, December 10th, we reached a pretty little lake called Odah, swarming with all kinds of wild-fowl; and towards evening we tried a drive, sending our boys along the water's edge to fire their rifles, while we lay hidden in different corners. After a very large expenditure of cartridges, our bag only resulted in a Goose, four Ducks, a Crane, and an Eagle! On the 15th we reached a wonderful hot-water spring called Billen, and on the 19th struck the Hawash River and had our first experience with elephants. We shot ten, half of which had poor ivory; but it was a case of saving our own lives with some difficulty! I do not ever remember tackling a worse lot of elephants, and the dense high bush made matters all the worse. Our men suffered badly in this neighbourhood from scorpion-stings.

The caravan arrived at Tadechamulka, altitude 3024 feet, on December 27th; and here we established a main camp. leaving all our camels and men, while we paid a flying visit to the Emperor Menelik. On our journey up to Addis Abbeba we saw very little bird-life, the weather being bitterly cold and wet, and as we were at an elevation of over 9000 feet, we found it terribly trying at night. On returning to our main camp I found that Perks had collected about fifty specimens of birds, but many were duplicates of those already obtained, and there was nothing rare among them.

A week's hard marching, chiefly along the Hawash Valley, brought us to Gogo, or Buffa Lake, a sheet of water covered with wild-fowl of all sorts, Egyptian Geese being found there in hundreds. Thence we made a side-trip to climb the sacred mountain of Zuquala, over 10,000 feet high. We found Oribi very common there, and added a new Antelope to our bag, viz. the Bohor. On reaching Lake Suai our camels were again badly poisoned through our boys allowing them to feed on the gumbôt. Owing to this neglect, we were not only delayed for a week, but lost many of our best young animals—a heavy loss, and one that we could not repair. Game was very plentiful; enormous herds of Bohor, Hartebeest, and Grant's Gazelle abounded. Working along the chain of lakes we reached and climbed the lofty and fertile hills of Walamo. How lovely the country looked after our weeks of desert and rocky-mountain travel! We saw many gay-plumaged birds, but how often we longed to hear the song of an English Thrush or Blackbird. The entire absence of singing-birds is most remarkable. Our journey now took us over some lofty ranges, the highest point being attained at Dincha (10,020 feet), an old stockaded Galla town, at present administered by Abyssinian generals, who showed us unbounded hospitality, loading us with presents of every kind. On March 5th we descended to the shores of Lake Margarita (4212 feet), and camped in a charming situation.

We now began to experience the full effects of the awful drought, the whole country being desolate and devoid of natives, while skeletons were strewn in all directions. On the way to Lake Stefanie we obtained the handsome Northern Giraffe, as well as some Ostriches, but our horror may be imagined on finding that Lake Stefanie was perfectly dry. Luckily we experienced some heavy thunderstorms, and were thus enabled to push on to Lake Rudolf. March 29th was a red-letter day, for we not only reached that lake, but Butter killed a pure white Topi antelope, a most perfect albino. It was wonderful luck to secure it out of the thousands of animals congregated along the shores. Pushing on to the Omo River, our hearts sank on finding the mighty stream quite dry, and the bed covered with rich green grass, which had sprung up during the recent heavy showers. This settled the question of our attempting to reach the Nile, as, of course, the Sobat would be equally dry; so after hoisting a boundary-flag near Murle, we sadly turned our faces southwards to begin the long trek of over 500 miles which we had to face before we could strike the Uganda railway. We found birds very scarce, the country all along the eastern shore of the lake being flat and parched; and as the only vegetation consisted of a few stunted bushes, we hardly ever got any shade under which to pitch our tents, while the heat was most oppressive.

On April 21st, after leaving our first camp at the south end of Lake Rudolf, I shot two small Finch-Larks, which proved to be of a new species (*Pyrrhulauda harrisoni*). The ground where I shot them was a mass of rocks, at an elevation of about 1800 feet. On May 11th we emerged on the old trade route to Uganda. It is hard to describe our feelings at being once more on a good road with bridges over all the bad places, and after 1500 miles of very rough ground, the last day or two to the rail-head seemed as nothing. Our camels were in splendid trim, in fact we travelled from Lake Baringo to the rail-head, a distance of some 110 miles, in four days, doing 37 miles one day. Breaking up our caravan, we took the railway to Mombasa, where we arrived on May 19th. Our total bag came to 381 head, made up of the following:—

Blue and Colobus Monkeys, Lion, Striped and Spotted Hyænas, Jackal, Silver-backed Jackal, Fox, Caracal, Elephant, Rhinoceros, Hippopotamus, Burchell's and Grévy's Zebras, Giraffe, Greater and Lesser Kudus, Oryx, Swayne's Hartebeeste, Eland, Waterbuck, Topi, Waller's, Grant's, Sœmmerring's, Pelzeln's, Baira, and Thomson's Gazelles, Bohor, Abyssinian Duiker, Oribi, Steinbuck, Pallah, Bushbuck, Klipspringer, Dik-Dik, Galla Ox, Wait Hare, Porcupine, Ant-bear, Ostrich, Crocodile, Iguana, various large Snakes. A new Bat (*Kerivoula harrisoni*, cf. Thomas, P. Z. S. 1901) was procured at Walamo at an elevation of 6700 feet. My collection of birds includes examples of 150 species, represented by nearly 300 skins.—J. J. H.]

Itinerary of the Expedition in 1899–1900.

Nov.	9th.	Zeila.
„	15th.	Dadab.
„	17th.	Hensau.
„	18th.	Lasman.
„	19th.	Somadu, 3500 ft.
„	21st.	Aruwini.
„	24th.	Bya Kaboba.
„	25th.	Gildessa.
„	29th.	Garrara.
Dec.	1st.	Genoble.
„	2nd.	Ortha.
„	6th.	Herrer.
„	7th.	Corta.
„	9th.	Tullar.
„	11th.	Lake Odah.
„	15th.	Dunkagga, 3770 ft.
„	16th.	Billen, 3400 ft.
„	20th.	Hawash Valley.
„	28th.	Tadechamulka, 3024 ft.
Jan.	22nd.	Alayu.
„	27th.	Buffa Lake or Gogo.
„	31st.	Gafartha, 5600 ft.
Feb.	4th.	Lake Suai.
„	9th.	Moya or Lake Horori.
„	14th.	Loko.
„	20th.	Walamo, 6700 ft.
„	25th.	Bunga, 5300 ft.
Mar.	4th.	Dincha, 10,020 ft.
„	6th.	Lake Margarita, 4212 ft.
„	10th.	Gardula, 5300 ft.
„	25th.	Lake Stefanie, 2350 ft.
„	29th.	Lake Rudolf till April 20th, 200 miles N. to S.
Apr.	21st.	Between Lake Rudolf and Lake Baringo.
May	12th.	Elmolo (Uganda Caravan route to Mombasa).

1. Corvultur crassirostris Rüpp.

a. ♂. Loko, 14th February, 1900. (No. 229.)

b, c. ♀. Dincha, 10,020 ft., 4th March, 1900. (Nos. 240, 241.)

[Iris black.—J. J. H.]

2. Rhinocorax affinis (Rüpp.).

a. ♀. Lasman, 18th Nov., 1899. (No. 20.)

b. ♂. Tadechamulka, 3024 ft., 31st Dec., 1899. (No. 141.)

3. Corone edithæ (Phillips).

a, b. ♂ ♀. Lake Rudolf, 18th April, 1900. (Nos. 282, 283.)

[Iris black; eyelids yellow.—J. J. H.]

The occurrence of this Crow at Lake Rudolf extends its known range a long way to the west. It was first met with by Mr. Lort Phillips on the coast of Somaliland in the neighbourhood of Berbera and in the Goolis range. It was subsequently obtained by Mr. Bennett Stanford in the same neighbourhood.

4. Corvus scapulatus Daud.

a, b. ♂ ♀. Walamo, 6700 ft., 20th–21st Feb., 1900. (Nos. 233, 234.)

[Iris black.—J. J. H.]

5. Dilophus carunculatus (Gmel.).

a, b. ♀. Alayu, 25th Jan., 1900. (Nos. 190, 191.)

c. ♀. Lake Rudolf. 17th April, 1900. (No. 281.)

[Iris hazel.—J. J. H.]

6. Pholidauges leucogaster (Gmel.).

a. ♂. Bunga, 5300 ft., 25th Feb., 1900. (No. 238.)

b. ♂. Lake Margarita, 4212 ft., 8th March, 1900. (No. 245.)

[Iris hazel.—J. J. H.]

7. Lamprotornis porphyropterus Rüpp.

a. ♂. Ortha, 3rd Dec., 1899. (No. 69.)

b. ♀. Herrer, 6th Dec., 1899. (No. 71.)

[Iris light yellow.—J. J. H.]

8. Lamprocolius chalybeus Ehr.

a–c. ♂ ♀. Gildessa, 27th, 28th Nov., 1899. (Nos. 50, 52, 53.)

d. ♂. Hawash Valley, 20th Dec., 1899. (No. 115.)

[Iris light orange.—J. J. H.]

9. Spreo superbus (Rüpp.).

a, b. ♀. Aruwini, 21st–22nd Nov., 1899. (Nos. 28, 36.)

c, d. ♂. Billen, 3400 ft., 16th Dec., 1899. (Nos. 108, 109.)

e, f. ♂. Tadechamulka, 3024 ft., 28th Dec., 1899. (Nos. 131, 132.)

g, h. ♂. Tadechamulka, 5th–13th Jan., 1900. (Nos. 155, 174.)

10. Cosmopsarus regius Reichenow.

a. ♀. Aruwini, 21st Nov., 1899. (No. 35.)

11. Buphaga erythrorhyncha (Stanl.).

a. ♀. Ortha, 2nd Dec., 1899. (No. 66.)

b. ♂. Billen, 3400 ft., 19th Dec., 1899. (No. 112.)

c, d. ♀. Hawash Valley, 20th Dec., 1899. (Nos. 118, 119.)

e, f. ♂ ♀. Tadechamulka, 3024 ft., 29th Dec., 1899. (Nos. 136, 137.)

[Iris yellow; bill bright red; eye-wattles yellow.—J. J. H.]

12. Buchanga assimilis (Bechst.).

a. ♂. Aruwini, 21st Nov., 1899. (No. 29.)

b. ♂. Ortha, 2nd Dec., 1899. (No. 64.)

[Iris light red.—J. J. H.]

13. Oriolus galbula (Linn.).

a. ♀. (Somaliland?)

14. Oriolus rolleti Salvad.

a. ♂. Lake Suai, 6th Feb., 1900. (No. 216.)

b, c. ♂. Lake Stefanie, 2350 ft., 27th March, 1900. (No. 256.)

[Iris red.—J. J. H.]

15. Pyromelana xanthomelæna (Rüpp.).

a. ♂. (Somaliland?)

16. Penthetria eques (Hartl.).

a, b. ♂ ♀. Walamo, 6700 ft., 24th Feb., 1900. (Nos. 236, 237.)

17. Ploceipasser melanorhynchus (Rüpp.).

a–c. ♂ ♀. Gildessa, 27th Nov., 1899. (Nos. 48, 49, 51.)

d. ♂. Hawash Valley, 20th Dec., 1899. (No. 117.)

e, f. ♀. Tadechamulka, 3024 ft., 6th Jan., 1900. (Nos. 156, 157.)

18. Lagonosticta brunneiceps Sharpe.

a. ♀. Hawash Valley, 26th Dec., 1899. (No. 124.)

19. Estrilda phœnicotis Swains.

a. ♂. Tadechamulka, 3024 ft., 30th Dec., 1899. (No. 138.)

20. Estrilda nigrimentum Salvad.

a. ♀. Tadechamulka, 3024 ft., 9th Jan., 1900. (No. 162.)

[Iris bright brown.—J. J. H.]

The black on the chin is scarcely noticeable, only a few small feathers in the angle being of that colour.

21. Anaplectes melanotis (Lafr.).

a. ♂. Lake Margarita, 4212 ft., 6th March, 1900. (No. 242.)

[Iris hazel.—J. J. H.]

Apparently a very old male of this species in the most brilliant plumage; the feathers of the mantle brownish black mixed with red, and the chest as well as the upper breast pure scarlet.

22. Hyphantornis galbula (Rüpp.).

a. ♂. Hensau, 17th Nov., 1899. (No. 18.)

b. ♂. Tadechamulka, 3024 ft., 9th Jan., 1900. (No. 161.)

23. Hyphantornis abyssinicus (Gmel.).

a. ♂. Tadechamulka, 3024 ft., 9th Jan., 1900. (No. 163.)

24. Hyphantornis vitellinus (Licht.).

a. ♂ ♀. (Somaliland?)

25. TEXTOR INTERMEDIUS Cab.

a. ♂. Dunkagga, 3770 ft., 14th Dec., 1899. (No. 101.)

b. ♂. Tadechamulka, 3024 ft., 7th Jan., 1900. (No. 159.)

26. DINEMELLIA DINEMELLI (Rüpp.).

a. ♂. Gildessa, 25th Nov., 1899. (No. 43.)

b. ♂. Billen, 3400 ft., 19th Nov., 1899. (No. 113.)

27. PASSER SWAINSONI (Rüpp.).

a–d. ♂ ♀. Tadechamulka, 3024 ft., 3rd–4th Jan., 1900. (Nos. 148–151.)

28. PYRRHULAUDA MELANAUCHEN (Cab.).

a. ♂. Zeila, 13th Nov., 1899. (No. 10.)

29. PYRRHULAUDA HARRISONI. (Plate VII.)

Pyrrhulauda harrisoni, Grant, Bull. B. O. C. xi. p. 30 (1900).

a, b. ♂ ♀. South end of Lake Rudolf, 1800 ft., 21st April, 1900. (Nos. 289, 290.) [*Types of the species.*]

Adult male. Most nearly allied to *P. verticalis* (Smith), but altogether paler; the black of the crown, lores, fore part of cheeks, throat, sides and front of the neck, as well as the middle of the chest, being replaced by deep chestnut; the middle of the breast and belly, as well as a patch between the back of the neck and upper mantle, black; the sides of the chest, breast, and flanks white; general colour above pale earthy brown; the interscapular region, as well as the lower back and rump, uniform. Total length 4·8 inches, wing 3, tail 1·8, tarsus 0·65.

Adult female. Above dark earthy brown, and apparently very similar to the female of *P. verticalis*. A dusky patch covers the greater part of the cheeks and ear-coverts, and the middle of the breast and belly are mostly black; the throat, fore-neck, and chest are mottled brownish white tinged with sandy; the sides and flanks darker. Total length 4·75 inches, wing 2·9, tail 1·8, tarsus 0·65.

Most interesting, perhaps, of all the species of which examples were procured is this beautiful new form of Finch-Lark from Lake Rudolf, figured in the accompanying

Plate. Mr. Harrison has very kindly presented the types of this fine species and other desirable birds to the British Museum.

30. Alæmon desertorum (Staul.).
a. ♀. Zeila, 13th Nov., 1899. (No. 12.)

31. Cinnyris osiris (Finsch).
a. ♂. (Somaliland.)

32. Cinnyris habessinica (Hempr. & Ehr.).
a–d. ♂ ♀. Tadechamulka, 3024 ft., 2nd–9th Jan., 1900. (Nos. 144, 154, 160, 164.)

33. Dryoscopus æthiopicus (Gmel.).
a. ♂. Tadechamulka, 3024 ft., 29th Dec., 1899. (No. 135.)

34. Dryoscopus funebris Hartl.
a. ♂. Gardula, 5300 ft., 12th March, 1900. (No. 251.)
[Iris black.—J. J. H.]

35. Laniarius cruentus (Hempr. & Ehr.).
a. ♀. Lasman, 17th Nov., 1899. (No. 19.)
b. ♂. Aruwini, 22nd Nov., 1899. (No. 37.)

36. Laniarius sulphureipectus (Less.).
a. ♂. Lake Stefanie, 2350 ft., 27th March, 1900. (No. 257.)
[Iris hazel.—J. J. H.]

37. Lanius excubitorius Des Murs.
a, b. ♀. Gardula, 5300 ft., 10th March, 1900. (Nos. 248, 249.)
[Iris hazel.—J. J. H.]

38. Lanius minor Gmel.
a. ♂. Lake Rudolf, 14th April, 1900. (No. 286.)
[Iris hazel.—J. J. H.]

39. Lanius antinori Salvad.
a. ♀. Dadab, 15th Nov., 1899. (No. 14.)

40. Lanius collurio Linn.
a. ♀ imm. Lake Rudolf, 9th April, 1900. (No. 273.)

41. **Lanius nubicus** Licht.
a. ♀. Dunkagga, 3770 ft., 15th Dec., 1899. (No. 104.)

42. **Prionops poliocephalus** (Stanley).
a. ♂. Lake Stefanie, 2300 ft., 27th March, 1900. (No. 258.)
[Iris hazel; eye-wattles yellow.—J. J. H.]

43. **Eurocephalus rueppelli** Bonap.
a. ♀. Dunkagga, 3770 ft., 15th Dec., 1899. (No. 103.)
b. ♂. Gardula, 5300 ft., 13th March, 1900. (No. 252.)
[Iris black.—J. J. H.]

44. **Monticola saxatilis** (Linn.).
a. ♀. Herrer, 6th Dec., 1899. (No. 73.)
[Iris brown.—J. J. H.]

45. **Saxicola isabellina** Cretzschm.
a. ♀. Dadab, 15th Nov., 1899. (No. 15.)

46. **Crateropus smithi** Sharpe.
a. ♀. Alaya, 22nd Jan., 1900. (No. 186.)

47. **Campophaga phœnicea** (Lath.).
a. ♂. Gardula, 5300 ft., 10th March, 1900. (No. 250.)

48. **Terpsiphone cristata** (Gmel.).
a. ♀. Lake Stefanie, 2350 ft., 25th March, 1900. (No. 255.)

49. **Campothera nubica** (Gmel.).
a. ♂ (wrongly marked ♀). Ortha, 2nd Dec., 1900. (No. 167.)
b. ♀. Gardula, 5300 ft., 10th March, 1900. (No. 247.)

50. **Dendropicus hemprichi** (Ehr.).
a, b. ♀ ad. sk. Gildessa, 25th to 27th Nov., 1899. (Nos. 44 & 51.)

51. **Thripias schoensis** (Rüpp.).
a. ♀. Gildessa, 29th Nov., 1899. (No. 54.)
b. ♀. Garrara, 29th Nov., 1899. (No. 60.)
c. ♂. Herrer, 6th Dec., 1899. (No. 74.)
d. ♂. Tadechamulka, 3024 ft., 13th Dec., 1899. (No. 139.)
[Iris brown.—J. J. H.]

52. INDICATOR MAJOR Steph.

a. ♂. Lake Rudolf, 31st March, 1900. (No. 263.)

[Iris hazel.—J. J. H.]

53. MELANOBUCCO ABYSSINICUS (Lath.).

a, b. ♀. Lake Margarita, 6th March, 1900. (Nos. 243, 244.)

[Iris hazel.—J. J. H.]

54. TRICHOLÆMA DIADEMATA (Heugl.).

a. ♂. Tadechamulka, 3024 ft., 5th Jan., 1900. (No. 152.)

The specimen before us is exactly similar in plumage to birds collected at Lado by Emin Pasha. The occurrence in eastern Shoa indicates an extension of its range to the north-east.

55. TRACHYPHONUS MARGARITATUS (Rüpp.).

a. ♀. Ortha, 3rd Dec., 1899. (No. 68.)

[Iris hazel.—J. J. H.]

56. SCHIZORHIS LEUCOGASTER (Rüpp.).

a. ♂. Somadu, 19th Nov., 1899. (No. 24.)

b. ♂. Gildessa, 27th Nov., 1899. (No. 47.)

57. GYMNOSCHIZORHIS PERSONATA (Rüpp.).

a. ♀. Loko, 14th Feb., 1900. (No. 227.)

[Iris hazel.—J. J. H.]

57 A. CUCULUS CANORUS.

a. Adult. (Somaliland ?)

58. CENTROPUS SUPERCILIOSUS (Hempr. & Ehr.).

a. ♀. Garrara, 29th Nov., 1899. (No. 58.)

b. ♂. Gildessa, 1st Dec., 1899. (No. 63.)

59. COLIUS LEUCOTIS (Rüpp.).

a. ♂. Tullar, 9th Dec., 1899. (No. 88.)

60. COLIUS MACRURUS (Linn.).

a, b. ♂ ♀. Hawash Valley, 20th–21st Dec., 1899. (Nos. 116, 120.)

[Iris hazel.—J. J. H.]

61. **Caprimulgus unwini** Hume.

a. ♀. Zeila, 11th Nov., 1899. (No. 9.)

This pale form of the common Goatsucker has not previously been recorded from Africa. Its range was known to extend from the River Oxus to Central Asia and N.W. India.

62. **Scotornis climacurus** (Vieill.).

a. ♀ imm. Lake Rudolf, 12th April, 1900. (No. 274.)

63. **Melittophagus sharpii** Hartert.

a. ♂. Somadu, 19th Nov., 1899. (No. 22.)

b. ♂. Billen, 19th Dec., 1899. (No. 114.)

c. ♂. Tadechamulka, 3024 ft., 13th Jan., 1900. (No. 175.)

64. **Merops nubicus** Gmel.

a. ♂. Lake Odah, 10th Dec., 1899. (No. 90.)

b, c. ♂ ♀. Gafartha, 5600 ft., 31st Jan., 1900. (Nos. 205, 206.)

d–f. ♂. Lake Rudolf, 29th March to 2nd April, 1900. (Nos. 261, 264, 265.)

[Iris red.—J. J. H.]

65. **Upupa epops** Linn.

a–d. ♂ ♀. Tadechamulka, 3024 ft., 28th Dec., 1899, to 12th Jan., 1900. (Nos. 133, 165, 171, 172.)

e. ♂. Lake Suai, 4th Feb., 1900. (No. 214.)

66. **Irrisor erythrorhynchus** (Lath.).

a. ♂. Bya Kaboba, 24th Nov., 1899. (No. 40.)

b. ♂. Gildessa, 25th Nov., 1899. (No. 41.)

c. ♂ imm. Tadechamulka, 3024 ft., 3rd Jan., 1900. (No. 147.)

67. **Rhinopomastus minor** (Rüpp.).

a. ♂. Bya Kaboba, 24th Nov., 1899. (No. 38.)

b. ♂. Dunkagga, 3770 ft., 14th Dec., 1899. (No. 102.)

[Iris brown.—J. J. H.]

68. **Bucorax abyssinicus** (Bodd.).

a. ♂. Buffa Lake (Gogo), 28th Jan., 1900. (No. 198.)

b. ♀ imm. Lake Suai, 8th Feb., 1900. (No. 220.)
[Iris hazel; gular pouch dark blue.—J. J. H.]

69. LOPHOCEROS NASUTUS (Linn.).
a. ♂. Lake Odah, 13th Dec., 1899. (No. 100.)

70. LOPHOCEROS ERYTHRORHYNCHUS (Temm.).
a. ♂. Hawash Valley, 26th Dec., 1899. (No. 125.)

71. LOPHOCEROS FLAVIROSTRIS (Rüpp.).
a–c. ♀. Aruwini, 21st Nov., 1900. (Nos. 30, 31, 32.)

72. BYCANISTES CRISTATUS (Rüpp.).
a. ♀. Bunga, 5300 ft., 25th Feb., 1900. (No. 239.)
[Iris hazel.—J. J. H.]

73. HAPALODERMA NARINA (Steph.).
a. ♀. Herrer, 6th Dec., 1899. (No. 76.)
[Iris brown.—J. J. H.]

74. CERYLE MAXIMA (Pall.).
a, b. ♂ ♀. Hawash Valley, 26th–28th Dec., 1899. (Nos. 128, 130.)
c. ♀. Tadechamulka, 3024 ft., 14th Jan., 1900. (No. 179.)

75. CORYTHORNIS CYANOSTIGMA (Rüpp.).
a. ♂. Tadechamulka, 3024 ft., 11th Jan., 1900. (No. 169.)

76. HALCYON SEMICÆRULEA (Forskål).
a. ♂. Tadechamulka, 3024 ft., 11th Jan., 1900. (No. 170.)

77. HALCYON CHELICUTENSIS (Stanley).
a. ♂. Garrara, 29th Nov., 1899. (No. 59.)
b. ♀. Hawash Valley, 21st Dec., 1899. (No. 121.)
c, d. ♀. Tadechamulka, 3024 ft., 10th–14th Jan., 1900. (Nos. 167, 177.)

78. CORACIAS ABYSSINICUS Bodd.
a, b. ♂. Hawash Valley, 22nd & 26th Dec., 1899. (Nos. 122, 126.)
c, d. ♂ ♀. Tadechamulka, 3024 ft., 2nd & 14th Jan., 1900. (Nos. 145, 178.)

79. Coracias nævius Daud.

a. ♂. Tadechamulka, 3024 ft., 12th Jan., 1900. (No. 173.)

b. ♂. Loko, 14th Feb., 1900. (No. 228.)

c. ♀. Walamo, 24th Feb., 1900. (No. 235.)

[Iris hazel.—J. J. H.]

80. Pœocephalus rufiventris (Rüpp.).

a, b. ♂ ♀. Somadu, 21st Nov., 1899. (Nos. 26, 27.)

c, d. ♂ ♀. Gildessa, 28th & 29th Nov., 1899. (Nos. 52 & 61).

e. ♂. Tadechamulka, 3024 ft., 21st Jan., 1900. (No. 185.)

81. Agapornis tarantæ (Stanl.).

a–c. ♂. Lake Suai, 1st–5th Feb., 1900. (Nos. 209, 210, 215.)

82. Bubo lacteus (Temm.).

a. ♂. Lake Suai, 8th Feb., 1900. (No. 219.)

[Iris dark hazel.—J. J. H.]

83. Glaucidium perlatum (Vieill.).

a. ♀. Tadechamulka, 3024 ft., 2nd Jan., 1900. (No. 146.)

84. Carine spilogastra (Heugl.).

a. ♀. Aruwini, 21st Nov., 1899. (No. 33.)

85. Otogyps auricularis (Daud.).

a. Adult. Gildessa, 25th Nov., 1899.

A very fine example of this Vulture.

[Height 42 inches, expanse between the tips of the wings 110 inches.—J. J. H.]

86. Neophron percnopterus (Linn.).

a. Immature. Somadu, 19th Nov., 1899. (No. 23.)

87. Neophron monachus (Temm.).

a. ♂. Tullar, 9th Dec., 1899. (No. 89.)

88. Circus æruginosus (Linn.).

a. ♂. Buffa Lake, 28th Jan., 1900. (No. 196.)

Examples of this Harrier are very rarely seen in collections from North-east Africa.

89. Melierax polyzonus (Rüpp.).

a. ♀. Gildessa, 11th Dec., 1899. (No. 97.)

b. ♂ imm. Tadechamulka, 3024 ft., 21st Jan., 1900. (No. 184.)

[Adult female, iris hazel.—J. J. H.]

89 a. Melierax niger (Vieill.).

a. ♂. Gafartha, 5600 ft., 30th Jan., 1900. (No. 204.)

90. Buteo augur (Rüpp.).

a, b. ♂. Buffa Lake (Gogo), 28th–29th Jan., 1900. (Nos. 195, 200.)

c. ♀. Gafartha, 31st Jan., 1900. (No. 208.)

[Iris dark hazel.—J. J. H.]

91. Milvus ægyptius (Gmel.).

a. ♂. Ortha, 2nd Dec., 1899. (No. 70.)

92. Aquila albicans Rüpp.

a. ♂ in 4th year's plumage. Gildessa, 29th Nov., 1899. (No. 62.)

b. ♂ in 2nd year's plumage. Herrer, 6th Dec., 1899. (No. 77.)

c. ♂ in 3rd year's plumage. Tadechamulka, 3024 ft., 29th Dec., 1899. (No. 134.)

d. ♂ in 1st year's plumage. Gafartha, 5600 ft., 30th Jan., 1900. (No. 203.)

A full account of this most interesting series has been prepared by Dr. Suschkin, and will appear in the Nouv. Mém. Soc. Nat. Moscou.

93. Lophaëtus occipitalis (Burch.).

a. ♀. Buffa Lake (Gogo), 25th Jan., 1900. (No. 189.)

b. ♂ vix ad. Walamo, 6700 ft., 20th Feb., 1900. (No. 232.)

[Iris bright yellow.—J. J. H.]

94. Haliaëtus vocifer (Daud.).

a, b. ♀. Tadechamulka, 3024 ft., 6th Jan., 1900. (No. 158 & no number.)

[Iris dark hazel.—J. J. H.]

95. HELOTARSUS ECAUDATUS (Daud.).

a. ♀. Gildessa, 25th Nov., 1899. (No. 45.)

A fine adult specimen with the feathers of the mantle, back, rump, and upper tail-coverts much worn, and faded to a pale rufous buff. In this plumage the species has been called by Rüppell and others *H. leuconotus*.

96. POLIOHIERAX SEMITORQUATUS (Smith).

a. ♂. Tadechamulka, 3024 ft., 10th Jan., 1900. (No. 166.)

b. ♀. Alayu, 23rd Jan., 1900. (No. 187.)

97. CERCHNEIS TINNUNCULUS (Linn.).

a. ♂. Tadechamulka, 3024 ft., 21st Jan., 1900. (No. 183.)

97 A. CERCHNEIS NAUMANNI Fleisch.

a, b. ♂ ♀. Between Lakes Rudolf and Baringo, 21st April, 1900. (Nos. 291, 292.)

98. FALCO TANYPTERUS Schleg.

a. ♀. Lake Rudolf, 17th April, 1900. (No. 279.)

[Iris black.—J. J. H.]

99. PLECTROPTERUS RUEPPELLI Sclat.

a. ♂. Buffa Lake (Gogo), 29th Jan., 1900. (No. 199.)

The British Museum previously possessed only one mounted example of this rare Goose.

100. CHENALOPEX ÆGYPTIACA (Linn.).

a. ♂. Lake Odah, 11th Dec., 1899. (No. 95.)

b. ♀. Tadechamulka, 3024 ft., 15th Jan., 1900. (No. 180.)

c. ♂. Buffa Lake (Gogo), 26th Jan., 1900. (No. 192.)

101. DENDROCYCNA VIDUATA (Linn.).

a. ♀. Lake Rudolf, 4th April, 1900. (No. 268.)

102. DENDROCYCNA FULVA (Gmel.).

a. ♂. Lake Rudolf, 20th April, 1900. (No. 287.)

103. NETTION PUNCTATUM (Burch.).

a. ♀. Lake Odah, 10th Dec., 1899. (No. 91.)

[Iris grey.—J. J. H.]

104. **Spatula clypeata** (Linn.).

a. [♂ imm.] Lake Odah. 11th Dec., 1899. (No. 94.)

105. **Scopus umbretta** (Gmel.).

a. ♂. Lake Odah, 15th Dec., 1899. (No. 93.)

b. ♀. Tadechamulka, 3024 ft., 10th Jan., 1900. (No. 168.)

106. **Abdimia abdimii** (Licht.).

a, b. ♂ ♀. Moya (Lake Hurori), 10th–12th Feb., 1900. (Nos. 224, 225.)

c. ♀. Walamo, 6700 ft., 20th Feb., 1900. (No. 230.)

[Iris: *a, b.* yellow; *c.* hazel.—J. J. H.]

107. **Pseudotantalus ibis** (Linn.).

a. ♀ imm. Gardula, 5300 ft., 14th March, 1900. (No. 253.)

[Iris light hazel.—J. J. H.]

108. **Ibis æthiopica** (Lath.).

a. ♂. Lake Odah, 10th Dec., 1899. (No. 92.)

b. ♂. Gafartha, 5600 ft., 31st Jan., 1900. (No. 207.)

c. ♂. Gardula, 5300 ft., 20th March, 1900. (No. 254.)

[Iris: *a.* grey; *b.* black; *c.* light hazel.—J. J. H.]

109. **Platalea alba** Scop.

a. ♂. Moya (Lake Hurori), 9th Feb., 1900. (No. 222.)

[Narrow iris white; naked skin round eye red; base and margin of culmen mauve; legs magenta!—J. J. H.]

110. **Mesophoyx brachyrhyncha** (Brehm).

a. ♂. Tadechamulka, 3024 ft., 19th Jan., 1900. (No. 182.)

An interesting specimen in the fullest breeding-plumage; the bare part of the tibia is *black*, with some yellow on the inner side only of the upper portion; this is specially marked on the right leg.

111. **Bubulcus ibis** Bp.

a. ♂. Moya (Lake Hurori), 9th Feb., 1900. (No. 221.)

[Iris yellow.—J. J. H.]

112. **Lepterodius gularis** (Bosc).

a. ♀. Zeila, 10th Nov., 1899. (No. 7.)

A pure white example in full breeding-plumage.

113. **Butorides atricapilla** (Afzelius).

a. ♀. Tadechamulka, 3024 ft., 16th Jan., 1900. (No. 181.)

114. **Bugeranus carunculatus** (Gmel.).

a. ♀. Moya (Lake Horori), 9th Feb., 1900. (No. 223.)

[Iris orange.—J. J. H.]

Dr. Sharpe, speaking of this form (B. M. C. B. xxiii. p. 268), says " Rüppell's statement that this species is found in Shoa needs confirmation." Moya is situated immediately south of Shoa.

115. **Grus grus** (Linn.).

a, b. ♀. Buffa Lake (Gogo), 27th Jan., 1900. (Nos. 193, 194.)

116. **Trachelotis canicollis** (Reichenow).

a. ♀. Gildessa, 7th Dec., 1899. (No. 83.)

b. ♂. Tullar, 9th Dec., 1899. (No. 87.)

[Iris hazel.—J. J. H.]

117. **Neotis heuglini** (Hartl.).

a, b. Ad. (Somaliland.)

118. **Eupodotis koki** (Burch.).

a. ♀. Moya (Lake Horori), 12th Feb., 1900. (No. 226.)

[Iris hazel.—J. J. H.]

119. **Œdicnemus senegalensis** Swains.

a, b. ♂ ♀. Lake Rudolf, 14th April, 1900. (Nos. 277, 285.)

Both examples are in very worn plumage.

120. **Glareola pratincola** (Linn.).

a. ♂. Lake Rudolf, 20th April, 1900. (No. 288.)

121. **Rhinoptilus hartingi** Sharpe.

a. ♀. Plains near Zeila, 13th Nov., 1899. (No. 11.)

b. ♀. Herrer, 6th Dec., 1899. (No. 75.)

a. wing 5·2 inches, tarsus 1·85; *b.* wing 5·3, tarsus 1·9.

These examples apparently belong to this species, but approach *R. bisignatus* Hartl. in the more rufous tint of the upper parts.

122. PHYLLOPEZUS AFRICANUS (Gmel.).
a. ♂ imm. Hawash Valley, 26th Dec., 1899. (No. 129.)
b. Ad. Buffa Lake (Gogo), 28th Jan., 1900. (No. 197.)
c. ♀ imm. Lake Rudolf, 3rd April, 1900. (No. 266.)
[Iris red.—J. J. H.]

123. STEPHANIBYX CORONATUS (Bodd.).
a. ♂. Gildessa, 2nd Dec., 1899. (No. 64.)
b. ♀. Herrer, 6th Dec., 1899. (No. 72.)
[Iris light red.—J. J. H.]

124. SARCIOPHORUS TECTUS (Bodd.).
a. ♂. Ortha, 2nd Dec., 1899. (No. 65.)
b. ♂. Gildessa, 7th Dec., 1899. (No. 84.)
[Iris golden.—J. J. H.]

125. HOPLOPTERUS SPINOSUS (Linn.).
a–d. ♂ ♀. Lake Rudolf, 13th–18th April, 1900. (Nos. 276, 278, 280, 284.)
[Iris red.—J. J. H.]

126. TOTANUS CANESCENS (Gm.).
a. ♀. Zeila, 9th Nov., 1899. (No. 1.)

127. TRINGA MINUTA Leisl.
a. ♂. Lake Rudolf, 4th April, 1900. (No. 267.)
[Iris grey.—J. J. H.]

128. ÆGIALITIS ALEXANDRINA (Linn.).
a. ♂. Zeila, 10th Nov., 1899. (No. 5.)

129. RHYNCHOPS FLAVIROSTRIS Vieill.
a, b. ♂. Lake Rudolf, 5th April, 1900. (Nos. 269, 270.)
[Iris hazel.—J. J. H.]

130. GELOCHELIDON ANGLICA (Mont.).
a. ♀. Zeila, 10th Nov., 1899. (No. 6.)

131. LARUS CIRRHOCEPHALUS (Vieill.).
a. ♂. Lake Rudolf, 13th April, 1900. (No. 275.)
[Iris light yellow.—J. J. H.]

132. **Larus hemprichi** (Bruch).

a, b. ♂ ad. et imm. Zeila, 9th Nov., 1899. (Nos. 2, 3.)

133. **Fulica cristata** Gmel.

a. ♀. Garrara, 29th Nov., 1899. (No. 57.)

134. **Vinago waalia** (Gmel.).

a. ♂. Lake Margarita, 4212 ft., 8th March, 1900. (No. 246.)

135. **Columba guinea** (Linn.).

a, b. ♂ ♀. Garrara, 29th Nov., 1899. (Nos. 55, 56.)

c. ♂ imm. Tadechamulka, 3024 ft., 30th Dec., 1899. (No. 140.)

136. **Turtur semitorquatus** (Rüpp.).

a. ♀. Alayu, 23rd Jan., 1900. (No. 188.)

137. **Turtur ambiguus** Bocage.

a, b. ♂ ♀. Tadechamulka, 3024 ft., Jan. 2nd, 1900. (Nos. 142, 143.)

138. **Œna capensis** (Linn.).

a. ♂. Dunkagga, 3770 ft., 15th Dec., 1899. (No. 105.)

b. ♂. Billen, 3400 ft., 16th Dec., 1899. (No. 106.)

c. ♀. Hawash Valley, 22nd Dec., 1899. (No. 123.)

139. **Chalcopelia afra** (Linn.).

a. ♂. Aruwini, 21st Nov., 1899. (No. 34.)

140. **Pterocles lichtensteini** Temm.

a, b. ♂. Herrer, 6th Dec., 1899. (Nos. 79, 80.)

c, d. ♀. Gildessa, 6th Dec., 1899. (Nos. 81, 82.)

e–g. ♂ ♀. Billen, 3400 ft., 16th–19th Dec., 1899. (Nos. 106, 110, 111.)

[Iris dark orange or hazel.—J. J. H.]

141. **Pteroclurus exustus** (Temm.).

a, b. ♂ ♀. Lake Odah, 13th Dec., 1899. (Nos. 98, 99.)

c, d. ♂ ♀. Lake Rudolf, 7th April, 1900. (Nos. 271, 272.)

After reading Mr. Hartert's remarks (Nov. Zool. viii. p. 28, 1900) on the supposed subspecies of this Sand-Grouse, I have carefully re-examined the series in the Museum. Mr. Hartert recognises three subspecies: *P. exustus*, from West and North-East Africa; *P. e. somalicus,* from the deserts of Somaliland; and *P. e. orientalis,* from India. The two males obtained by Mr. Harrison evidently belong to what Mr. Hartert calls *P. exustus somalicus,* and agree exactly in colour and size with Indian specimens. On the other hand, a male procured by Mr. Gillett, also in Somaliland, has the brighter plumage of *P. exustus exustus* Hartert! This, the typical form, is said to be larger than the Somaliland bird; but the Museum specimens do not show such to be the case, and I cannot see any reason to allow more than one name, *P. exustus,* for the species.

142. Pternistes infuscatus Cab.

a, b. ♂ ♀. Dadab, 15th Nov., 1899. (Nos. 16, 17.)

143. Francolinus sharpii Grant.

a, b. ♂ ♀. Gafartha, 5600 ft., 30th Jan., 1900. (Nos. 201, 202.)

c, d. ♂ ♀. Lake Suai, 7th Jan., 1900. (Nos. 217, 218.)

[Iris hazel.—J. J. H.]

144. Francolinus granti Hartl.

a. ♀. Somadu, 19th Nov., 1899. (No. 23.)

b. ♂. Bya Kaboba, 24th Nov., 1899. (No. 39.)

c, d. ♂ ♀. Lake Suai, 4th–6th Feb., 1900.

The pair of birds from Lake Suai have the dark chestnut spots confined to the feathers of the fore-neck and upper part of the chest, and appear to be very old.

145. Coturnix coturnix (Linn.).

a. ♀. Walamo, 6700 ft., 20th Feb., 1900. (No. 231.)

146. Numida ptilorhyncha Licht.

a, b. ♂ ♀. Tullar, 9th Dec., 1899. (Nos. 85, 86.)

c. ♀. Lake Suai, 1st Feb., 1900.

147. Acryllium vulturinum (Hardw.).

a, b. ♂. Lake Stefanie, 2350 ft., 28th–29th March, 1900. (Nos. 259, 260.)

[Iris red.—J. J. H.]

148. Struthio molybdophanes Reichen.

a–c. ♂ ♀ (head and neck only). Elmolo, 12th May, 1900. (Nos. 299–301.)

XXIV.—*Results of an Ornithological Journey through Colombia and Ecuador.* By Walter Goodfellow, F.Z.S.

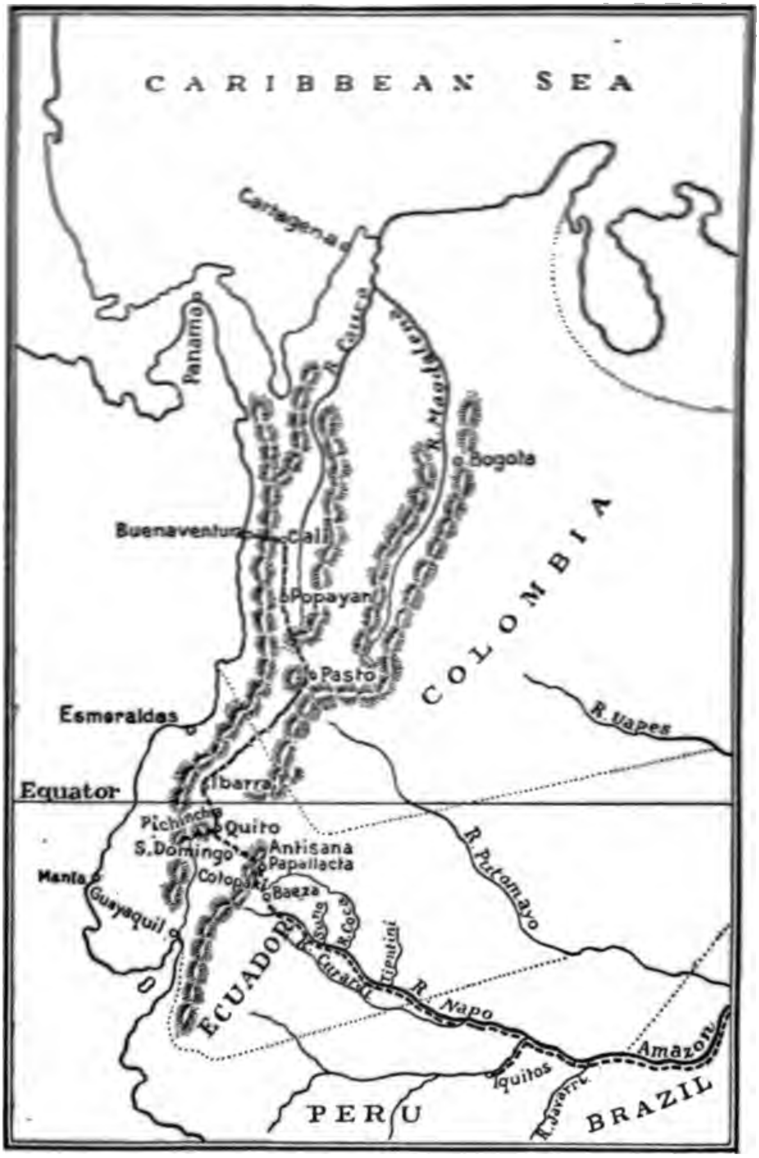
(Plate VIII.)

Mr. Claud Hamilton and I, having decided upon an ornithological trip to Ecuador, found ourselves at the port of Guayaquil on the 2nd of February, 1898. It had been our intention to enter South America by Buenaventura, on the west coast of Colombia, and to work the southern part of the beautiful Cauca Valley first, so as to reach Ecuador from the north. But happening to arrive in Panama the day after the Buenaventura boat had left, we decided that, rather than wait there for a fortnight, we would take that leaving for Guayaquil on the following day, and thence get another vessel up the coast back to Buenaventura. Unfortunately, we were not able to do much collecting in the neighbourhood of Guayaquil, for Mr. Hamilton met with a serious accident soon after our arrival, and was nearly blinded by the bursting of a bottle containing strong spirits of ammonia.

The return journey up the coast was very interesting, as our boat called at every port, and I went on shore whenever an opportunity was afforded. On the whole, however, birds seemed scarce in the immediate vicinity of most of the places; the only exceptions being at Puerto Viejo and Bahia de Caracas, where I noticed them in large numbers, and around Manta, where I saw many examples of *Pyrocephalus rubineus* and a few small flocks of *Psittacula cœlestis.* The country at the back of the two former towns seemed to offer a most inviting field to the naturalist. Although I spent the best part of a day in the forests near Esmeraldas, I came across very few birds, but I shot a fine boa. At the end of some seven days we reached the miserable little port of Buenaventura, where we were accommodated at the Cable Station for two days, as the train only leaves for the interior twice a week. The place has an unenviable reputation for unhealthiness all up the west coast, and its character seemed well borne out by the appearance presented by the two or three Europeans living there, and even by the natives themselves, who are mostly negroes from the West Indies, with a few Chinese. Its unhealthiness is due to the pestilential swamps which surround the town at the back. The railway, which has taken over 20 years to build, comes to an end at a spot in the woods 26 miles inland, called San José, at the foot of the outlying mountains, where a few sheds and miserable huts have sprung up. From this place the journey inland has to be continued on horses for the remaining three days to Cali. The road runs along the sides of beautiful narrow valleys, through gorges, and over forest-covered mountains. The scenery everywhere is indeed wonderful; but what makes this one of the most interesting journeys I have ever taken, is the surprising number of birds to be seen everywhere. Nowhere else in South America have I seen examples of so many species in so short a distance. When the summit of the Western Andes was reached, a marvellous view suddenly burst upon us. A broad, flat, fertile valley lay below us, backed up far away in the distance by the snow-peaks of the Central Andes, while the Cauca River, winding about like a long silver ribbon, lay before us. Thousands of feet below nestled the picturesque town of Cali, with its even rows of red-tiled roofs shining in the sun. The road down is steep, winding, and wearisome, and the distance very deceptive. The eastern side of the mountains is remarkably burnt up and barren, compared with the damp, luxuriant forests which clothe the western slopes to the summit. About 2000 feet above Cali we noticed hundreds of Swallow-tailed Kites (*Elanoides furcatus*) circling about in the air, and very pretty they looked as they flew. We stopped only a few days in Cali, and were occupied during that time in finding horses and arranging for our journey south to Popayán.

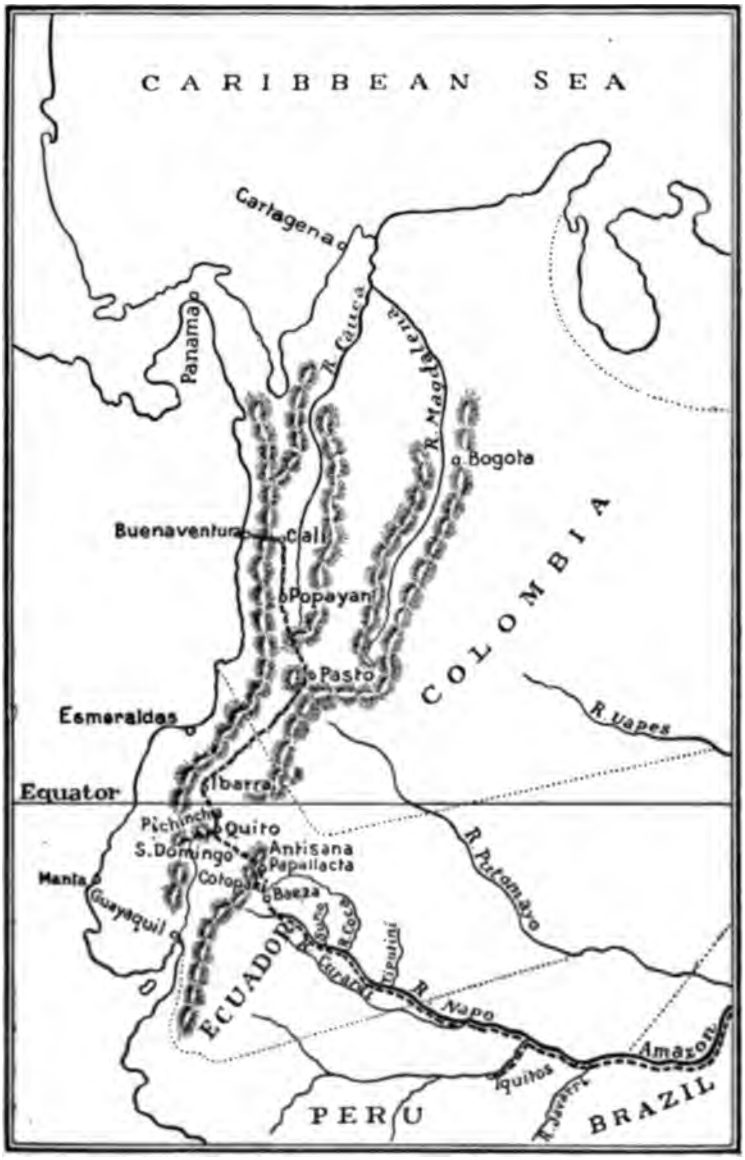
May is the best month for travelling in this part of Colombia; we found the beginning of April too early, as the roads, at all times bad, were then in most parts all but impassable, while the rivers were swollen and dangerous to cross. So, instead of taking five days for the journey to Popayán, we took nearly ten. The whole country between Cali and Popayán is given up to ranching, and that which is not grazing-land is under

Fig. 29.



Part of Colombia and Ecuador, showing Mr. Goodfellow's route.

Fig. 29.



Part of Colombia and Ecuador, showing Mr. Goodfellow's route.

cultivation where the mountainous nature of the country admits of it. Consequently, with one or two exceptions, we saw but few birds. These exceptions were *Crotophaga ani, Milvulus tyrannus,* and *Tyrannus melancholicus,* which abound all through the Cauca Valley. After the first day the road winds entirely through the mountains, and consists of a series of arduous ascents and descents into small valleys.

Popayán is a sleepy, clean old town, without any trade, and in Colombia is considered quite an aristocratic residence. There are certainly many old and wealthy families living in this isolated place, all of which possess large, if somewhat neglected, "haciendas" up in the Central Cordillera. The town itself lies at the foot of the central range, and is backed by the very active volcano of Puracé, altitude 17,000 feet, which we ascended. For many miles to the west stretches a level valley to the clearly-outlined Western Andes, and nowhere else did we see the different parallel ranges so distinctly defined. The climate is, perhaps, as perfect as a climate can be, neither too hot nor too cold, but cooler than one would expect for the position and altitude, which is only 5800 feet. The vegetation, moreover, is not at all tropical-looking; indeed, the fields, surrounded by well-kpet hedges, reminded us of home. We spent nearly two months there and in the neighbouring mountains, and made a fair collection of birds, but we were disappointed to find Humming-birds extremely scarce. We were told that September was the best month for them, when many kinds of trees are in bloom. Unfortunately none of the residents in the town were able to indicate the best collecting-grounds in the neighbourhood; thus much time was wasted in exploring profitless places, and it was not until we were just leaving and had made all arrangements for our journey south to Pasto, that we discovered the exact localities of which we had been in search. I think, however, it would scarcely repay any collector to go to these parts, for, besides the expense, the travelling is most difficult. Even more difficult is the country between Popayán and Pasto, which is an eight days' ride, the whole intervening country being one vast jumble of mountains.

It is impossible to imagine anything finer in the way of mountain-scenery, or greater variety, and we saw nothing like it anywhere else—it will for ever be impressed on my memory. There are three routes available between the two towns; we chose the one by the Patia valley. It is the shortest, but the least frequented and the most dangerous. This remarkably situated valley is very little known, and, being so cut off from communication, has never, I believe, been properly explored. I saw many birds and butterflies there which I observed in no other part of the country. The climate is hot and exceedingly unhealthy for most of the year, and the inhabitants (all negroes) have an evil reputation and seem to live mostly by robbery, so that every man's hand is against them. On account of a breakdown in our transport, we were forced to spend a few days there, until we could get more beasts, and during that time we shot as many birds as we could, among them being two fine kinds of Ibis of the genus *Theristicus*. Two fairly important towns are passed on the way to Pasto, namely, Mercaderes and La Union; the inhabitants of the latter picturesque little place being solely engaged in making "Panama" hats, probably the best supplied by Colombia.

The situation of Pasto is very striking, and it requires no imagination to see that it is built inside what was once the crater of a volcano, and that Galera, which now rises above the town on the S.W., is but a newer vent for the escape of steam. The town is surrounded on all sides except the west by a continuous line of crags, which on the east are absolutely perpendicular, but the western side was evidently blown out many ages ago. The altitude of the town is 8600 feet, and, in spite of its sheltered situation, the climate is cold and miserable, while the houses are comfortless in more ways than one. Pasto is always seething with rebellion, and most of the periodical revolutions of both Colombia and Ecuador are hatched here. The men are mostly muleteers by trade, but they are always to be hired as fighting men in any cause, or on either side of a revolution. At such times they march forth accompanied by an equally large force of women, who are provided with sacks for the loot, and their very name strikes terror into the heart of an Ecuadorian. They are a fine, good-looking race, but the word "Pastuso" is a term of insult in Colombia, and signifies everything that is stupid and contemptible, for nothing good can come out of Pasto. We stayed here but ten days, and experienced much difficulty in getting mules for the long distance to Quito. We found this stage of our journey still more trying and arduous than that through the country already traversed, for we were continuously at very high altitudes and often exposed to snowstorms, our only dip into warmer regions being at the hot valley of the Chota, where we found the country all rock and sand, and everything burnt up. In this barren place we lost two of our horses from exhaustion, and were delayed two days at Ibarra before finding others. Fortunately, on this portion of our route, we generally managed to stop for the night in towns or villages, as the road passes through Túquerres, Ipiales, Tulcán (the frontier town), Ibarra, Otavalo, and other less important localities; but in most of them it is extremely difficult to get anything to eat, and at many places impossible. When we left Pasto we were not able to procure quite as many mules as we needed, so, among other things, we left behind the boxes of bird-skins that we had collected in the Cauca and Patia valleys. These were to follow us later, but they appear not to have been sent off for two or three months, and by that time a revolution had begun in Ecuador, so that the mules were seized by the revolutionists when they crossed the frontier, and, so far as we could ascertain, our boxes were rifled and left on the roadside. At any rate we never recovered them, and the work of several months was lost, with the exception of a few skins we had carried with us.

We made Quito our headquarters for several months, and thoroughly explored all the country round, besides taking trips down to the low forest-land on the Pacific side, as well as to the Valle de Viciosa, in the eastern mountains at the back of Cotopaxi. This little-known valley, or plateau, stands at an elevation of about 14,500 feet, and is bounded by Antisana, Cotopaxi, Quilindaña, and other snow-covered peaks, while from the far end of it a view can be gained of the lower forest-covered mountains stretching away down to the rivers forming the head-waters of the Amazon. With the exception of two shepherds' huts, which are far apart, this valley is uninhabited, and most of the country for miles around is devastated by eruptions from Cotopaxi. The climate is very cold, and snow fell on several nights during our stay there in December.

We found Pichincha wonderful collecting-ground, and as it rises above the city of Quito, it is very accessible. At the summit of the crater it is 16,000 feet high, and so just reaches the snow-line, but for 2000 feet above Quito its slopes and valleys are covered with flowering bushes and stunted trees, which teem with birds, Humming-birds predominating. Still higher up grows the wiry "páramo-grass," also the haunt of many varieties, notably *Attagis chimborazensis*, *Gallinago jamesoni*, and *Nothoprocta curvirostris*, while on the cliffs and rocks around the crater the Condors make their home.

Between the Western Andes and the Pacific coast the whole country is covered with virgin forests, which reach up the mountains to an altitude of 12,000 feet. These are most sparsely inhabited by whites, who are everywhere miserably poor and verging on starvation, a result due to their lack of energy. On a few execrable trails, often impassable, leading down from the mountains, an occasional hut may be met with, but many names printed in large type on Wolf's map do not exist at all, or represent a solitary hut, or the spot where a hut once stood. Our best collecting-ground on this side was at Santo Domingo, in the country of the Colorado Indians, the finest natives we met with, who paint the whole of their bodies a uniform red, with a basket-work pattern of blue over it. This place contains but three huts, for the Indians live far away in the depths of the forests around. Some of the intermediate resting-places at higher altitudes also yielded a great number of birds, but, almost without exception, all places below a certain level are extremely unhealthy, while travelling is most difficult, and all food-supplies must be taken from headquarters.

During the latter part of our stay in Quito we were involved in a revolution, and for a time the city was besieged. A great portion of the population took refuge in the various Legations and Consulates; several hundred, including some Cabinet Ministers, came to the British Consulate, where we also stayed when in Quito. All this greatly retarded our arrangements for going to the Napo, which was the most formidable part of our travels in South America and the climax of our experiences. We had never imagined anything so bad as the route. Track there was none, and on the eastern mountains some of the climbs were so steep and so dangerous that it seemed as if mules could never pass. Other spots were all morass, and at times we seemed likely to sink in altogether, and spent hours in extricating ourselves and our animals. The route to be followed from Quito first takes a dip down into the wide and somewhat dry Chillo Valley, which connects the Western and Eastern ranges of the Andes, and forms the northern end of the central highlands of Ecuador. Here it is that among the Humming-birds may be found some intermediate forms between the Western and Eastern varieties. A good example is the well-known *Petasophora iolata*. We found this bird green on the western range and quite bronzy on the eastern range, whereas all the specimens procured from the connecting Chillo Valley were intermediate in colouring.

When the Eastern Andes were reached, the path rose suddenly and steeply to the dreaded Guamani Pass at 16,000 feet. It can only be crossed at certain seasons of the year, when the snows have somewhat melted. Even at this altitude we found bird-life not altogether wanting, for we shot specimens of *Myiotheretes erythropygius* and *Muscisaxicola alpina* almost at the summit of the pass. No human habitation is met with for nearly two days, until the small Indian village of Papallacta is reached on the eastern side at 11,500 feet, standing in a romantic and verdant bend of a spur of Antisana. It is a cold place, but we passed the month of February 1899 there, and found birds most abundant. From here we had to travel on foot down to the headwaters of the Napo, a journey of nearly three weeks. The only habitations met with during that time were at Baeza, three days' walk below Papallacta, where there were four huts. Here, again, we stayed a month, and obtained many rare birds. When at last we reached the Napo many fresh difficulties arose, for we were cast alone among various Indian tribes, some being anything but friendly, and one and all most unwilling to assist us with canoes in which to proceed down the river. Consequently we had to remain in some places, racked with ague and fever, for several months. Even when we were able to get canoes the Indians would not take us beyond their own territories, the various tribes being unfriendly to one another. These enforced stoppages were all the more aggravating, as birds were by no means numerous on the main river; but we found them plentiful in some places on the narrower tributaries, such as the Jusepino, the Suno, and the Suyuno. The whole journey down the Napo to Iquitos on the Marañon would occupy about four weeks in canoes, if made direct and with the river "in flood." After passing the Rio Tiputini we proceeded straight to that town, which we found to be a fairly flourishing little place and an important rubber-centre, as it is at the head of navigation on the Upper Amazon for the larger steamers. At Iquitos our journey may be said to have ended, since from there we were able, after some further adventures, occasioned by the place being in the throes of a "revolution," to hire a small launch to the Rio Javarri, and thence to take a river-steamer right down to Pará, whence we shipped direct to England.

During this journey Mr. Hamilton and I collected altogether about 4000 skins of birds, belonging, as will be seen by our list, to about 550 species. This great number was entirely due to Mr. Hamilton's unbounded energy and love of shooting, while he at all times kept me fully occupied from morning till evening with skinning, and sometimes far into the night as well. It will be recollected that we lost the first portion of of a spur of Antisana. It is a cold place, but we passed the month of February 1899 there, and found birds most abundant. From here we had to travel on foot down to the headwaters of the Napo, a journey of nearly three weeks. The only habitations met with during that time were at Baeza, three days' walk below Papallacta, where there were four huts. Here, again, we stayed a month, and obtained many rare birds. When at last we reached the Napo many fresh difficulties arose, for we were cast alone among various Indian tribes, some being anything but friendly, and one and all most unwilling to assist us with canoes in which to proceed down the river. Consequently we had to remain in some places, racked with ague and fever, for several months. Even when we were able to get canoes the Indians would not take us beyond their own territories, the various tribes being unfriendly to one another. These enforced stoppages were all the more aggravating, as birds were by no means numerous on the main river; but we found them plentiful in some places on the narrower tributaries, such as the Jusepino, the Suno, and the Suyuno. The whole journey down the Napo to Iquitos on the Marañon would occupy about four weeks in canoes, if made direct and with the river "in flood." After passing the Rio Tiputini we proceeded straight to that town, which we found to be a fairly flourishing little place and an important rubber-centre, as it is at the head of navigation on the Upper Amazon for the larger steamers. At Iquitos our journey may be said to have ended, since from there we were able, after some further adventures, occasioned by the place being in the throes of a "revolution," to hire a small launch to the Rio Javarri, and thence to take a river-steamer right down to Pará, whence we shipped direct to England.

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Here I may as well give the months in which we collected at the various places in Ecuador :—

July and August 1898.	Nanegal, Gualea, and Intag, West Ecuador.
September 1898.	Milligalli, Canzacota, and San Nicolas, "
October "	Santo Domingo de los Colorados, "
November "	Chiefly spent on Pichincha and Mindo.
December "	Valle de Viciosa, environs of Quito and Pichincha.
January 1899.	Chillo Valley and neighbourhood of Quito.
February "	Papallacta, East Ecuador.
March "	Baeza, "
April "	Indian village of Archidona, at foot of the Eastern Andes.
May (first half) 1899.	Suno, Upper Rio Napo.
May, June, and July 1899.	Rio Coca, Upper Rio Napo.
August (first fortnight) 1899.	Rio Tiputini, Rio Napo.

In the following list I have used the arrangement and nomenclature of Sclater and Salvin's 'Nomenclator Avium Neotropicalium,' except where otherwise stated.

1. CATHARUS FUSCATER (Lafr.).

One ♂ from above Mindo, altitude 8800 feet, on the Western slope of Pichincha. Its stomach contained berries. The bill is orange, with a black line down the centre; legs, feet, and rim of eyelids also orange. Although we were a long time in this locality we never saw but the one specimen.

2. TURDUS LEUCOPS Tacz.

Merula leucops Seebohm, Mon. Turd. p. 47, pl. lxxxviii.

A pair from Gualea, Western Ecuador. The male was shot on the top of a bush, and the female an hour later in the same place [illegible] then discovered a nest in the bush which I supposed to belong to them. It was barely three feet from the ground, and was a very neat structure, being composed of dry leaves and moss. It contained three blue eggs; one was quite plain, but the other two were speckled with reddish brown. Bill and legs yellow, iris light grey.

8. Turdus [illegible] Fraser.

These birds are very [illegible] the highlands of both Eastern and Western Ecuador at altitudes of from 8500 to 1[illegible] We first saw them in Southern Colombia, [illegible] as in Ecuador, where [illegible] of bushes and low trees [illegible] though the scrub is not large [illegible] of Papallacta, East Ecuador, a F[illegible] constituted a nuisance. We found their nests on the [illegible] in September at 9000 feet, also [illegible] N[illegible] at [illegible] 10,000 feet. Bill, legs and [illegible] Local name [illegible]

9. Turdus [illegible]

Turdus [illegible] Proc. [illegible] p. 288.

[illegible] Archidona and [illegible] the [illegible] on the Upper Napo, East Ecuador, [illegible] They frequented the clearings [illegible] in the forests. [illegible] p. 288 states that it is not [illegible] whiter on [illegible] the throat of a

[illegible] p. 219.

[illegible] Papallacta, South [illegible] numerous [illegible] with them again [illegible] in eastern Ecuador were [illegible] the mouth of the Coca, and kept strictly to the clearings, where they sat about on the topmost twigs of the low bushes well out in the open. They have a remarkably sweet song, and their beautiful notes were among the first sounds to wake us in the early mornings on the Napo. They must have been nesting in April and May, as the Indians brought in several nestlings. We never saw or shot a specimen lower down the Napo than where the Coca joins it. There appears to be a little difference between the Popayán and Napo skins; the latter are a trifle darker on the upper side, and whiter on the vent.

6. CINCLUS LEUCONOTUS Scl.

2 ♂s, 1 ♀ from Papallacta, East Ecuador, 11,500 feet. These birds frequent the rocks in the river-beds, and our specimens were procured near the source of a hot spring flowing from the side of the mountain. The crown and nape of the female are much mottled with black and light grey. Iris brownish red in the ♂ and grey in the ♀.

7. MYIADESTES RALLOIDES (Lafr. & D'Orb.).

Milligalli, Gualea, and near Mindo, Western Ecuador, at altitudes of from 4000 to 6600 feet. Frequents the tops of rather high trees.

8. MYIADESTES CORACINUS (Berlp.). (Plate VIII.)*

♂. This rare species we shot in the dense forests below Baeza, at an altitude of probably 4000 feet, on our journey down to the Napo. It was one of the exceedingly few birds we met with in these gloomy forests, and in this case a pair of them were together in the top of a high tree. Our attention was attracted by their metallic-sounding call-note, uttered at intervals. This is the first specimen recorded from the Eastern Andes.

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* [This remarkable species was first described by Graf v. Berlepsch in 1897 (Orn. Monatsb. 1897, p. 175), from a single specimen in his collection, which had been obtained by Herr Gustav Hopke near St. Pablo, in S.W. Colombia. It is a close ally of *M. leucotis* (Tsch.) of Peru. There is a single example of it in the Tring Museum which, by the kindness of Mr. Rothschild, I have been able to compare with Mr. Goodfellow's skin. It was obtained along with other birds from some part of Northern Colombia, probably from Antioquia, but the exact locality is not known.—P. L. S.]

9. Polioptila bilineata (Bp.).

♂. Near Santo Domingo, W. Ecuador, 1000 feet. Shot in a low bush near a stream.

10. Campylorhynchus brevirostris Lafr. (Sharpe, B. M. C. B. vi. p. 198.)

A good series of these birds from Santo Domingo, W. Ecuador, altitude about 600 feet, where they were very numerous at times in the low bushes around the huts. The iris is bright red. The black spots on the under tail-coverts seem to be partially or totally wanting in the females; they also have a wash of brown on the nape, and the feathers on the crown are edged with a lighter grey than in the males.

11. Cinnicerthia unibrunnea (Lafr.).

Common at many localities on the Western Andes at altitudes of from 10,000 to 12,000 feet, and also at Papallacta on the Eastern range. One ♂ from the latter locality has some cream-coloured feathers above the nostrils, and although we obtained a large series of both sexes, it is the only one so marked. Four or five individuals were generally seen together.

12. Cinnicerthia olivascens Sharpe.

Cinnicerthia olivascens Sharpe, B. M. C. B. vi. p. 184.

2 ♂s, 1 ♀. We met with this bird on the western side of Pichincha only from 8000 to 9000 feet. It was not nearly so numerous as the preceding species, and was seen singly or in pairs. I see in my note-book I have recorded that the call-note is different from that of *C. unibrunnea*, but I do not remember now in what way.

13. Henicorhina leucophrys (Tsch.).

We obtained a series from both the Eastern and Western Andes at elevations of from 9000 to 11,500 feet, where the birds hop about on the ground under the low bushes, and as they are very active they are somewhat difficult to shoot. Iris reddish brown.

14. THRYOPHILUS NIGRICAPILLUS (Scl.).

We shot a pair of these birds at San Nicolas, and another pair at Intag, both on the west side, and in each case only the females were barred across the upper breast, the markings being rather brown. (See B. M. C. B. vi. p. 216.)

15. THRYOTHORUS GRISEIPECTUS (Sharpe).

Thryothorus griseipectus Sharpe, B. M. C. B. vi. p. 236.

♀. Archidona, near the foot of the Eastern Andes.

16. THRYOTHORUS EUOPHRYS Scl.

From about 12,000 feet on Pichincha, Western Andes.

17. THRYOTHORUS GOODFELLOWI Scl.

Thryothorus goodfellowi Scl. Bull. B. O. C. xi. p. 47.

One male and one female from Papallacta, 11,000 feet, Eastern Andes, in February.

A close ally of *T. euophrys*, but at once recognisable by its white throat.

18. TROGLODYTES SOLSTITIALIS Scl.

♂. Baeza, Eastern Ecuador, 5000 feet. I caught this specimen in the thatch of an Indian hut, where it was looking for insects.

19. TROGLODYTES OCHRACEUS Ridgw.

Troglodytes ochraceus Ridgw. Proc. U. S. N. M. iv. p. 334 (1881).

Two males from about 7000 feet on the western side of Pichincha in December. These were the only specimens seen, and were killed at one shot.

20. CISTOTHORUS BRUNNEICEPS Salv.

Cistothorus brunneiceps Salvin, Ibis, 1881, p. 129, pl. iii. fig. 1.

♂. Above Milligalli, W. Ecuador, 6500 feet.

21. ANTHUS BOGOTENSIS Scl.

♀. Valle de Viciosa, 14,000 feet. I caught this bird in my hand in a clump of the wiry "páramo" grass in the early morning, when all the ground was white with frost. In the same locality my horse also trod on another which was hiding in the grass, and crushed it quite flat. Iris red.

22. Parula pitiayumi (Vieill.).

Baeza, on the eastern side of the Eastern Andes, 5000 feet. This was the only place where we met with it.

23. Parula inornata Baird.

A large series from San Nicolas, Guanacillo, and Rio Blanco, W. Ecuador. The birds were very plentiful in July at Intag, and numbers of them together were constantly hopping about the bushes close to the huts. They are very quick little creatures, and always on the move.

24. Dendrœca blackburniæ (Gm.).

These birds were as thick as autumn leaves at Papallacta, E. Ecuador, 11,500 feet, in February, but very few of them were in mature plumage.

25. Dendrœca striata (Forst.).

♂. Archidona, at the headwaters of the Napo. Shot in the clearing near the huts.

26. Dendrœca æstiva (Gm.).

3 ♂s, 1 ♀. Archidona. All were shot in the high gables of the Indian huts, where they were constantly hunting for insects.

27. Geothlypis semiflava (Scl.).

A pair from San Nicolas, W. Ecuador, in September.

28. Geothlypis philadelphia (Wils.).

♂. Papallacta, in February.

29. Myiodioctes canadensis (L.).

3 ♂s, 2 ♀s. Archidona, April 1899.

30. Basileuterus coronatus (Tsch.).

6 ♂s, 2 ♀s. Milligalli and Canzacota, 6000 to 6500 feet. Some of the males have the inner webs of the wing-feathers edged with creamy white on the underside, while others have it distinctly cinnamon. One male from Canzacota has white nasal coverts, and a few very yellow feathers on the forehead.

31. Basileuterus semicervinus Scl.

One male and one female from Nanegal, W. Ecuador. Both were shot quite in the forest.

32. Basileuterus nigrivertex Salvin, Nov. Zool. ii. p. 3.

Six males and three females from Intag, Gualea, and Milligalli, W. Ecuador. Shot in July, August, and September. The wings vary in length in the males. The females have a brownish-yellow line over the eyes, while the crown is brownish black, and does not extend so far back as in the males.

33. Basileuterus castaneiceps Scl. et Salv. (Sharpe, B. M. C. B. x. p. 389.)

♂. Baeza, E. Ecuador. This single specimen was brought down at the same shot as an example of *Calliste cyaneicollis.*

34. Basileuterus auricularis Sharpe, B. M. C. B. x. p. 386.

2 ♂s, 1 ♀. Gualea and Canzacota, about 6000 feet. The female appears to have a considerably longer bill than the male.

35. Setophaga ruticilla (L.).

We shot two specimens of this bird in the yard at the back of the inn in which we stopped in Ibarra, 6600 feet, on our way down to Quito in June, others at Mindo, W. Ecuador, in November, and more at Papallacta, 11,500 feet, E. Ecuador, in February.

36. Setophaga bairdi (Salv.); Sharpe, B. M. C. B. x. p. 423.

These birds were very plentiful on the western side of Corazón above Milligalli in September at 8000 feet. I constantly noticed them hanging head downwards from a twig to reach at insects below them. We also shot specimens on the western side of Pichincha up to 12,000 feet, but never once saw one on any other side of that mountain. They were also abundant at Papallacta, E. Ecuador, in February.

37. Setophaga verticalis (Lafr. & D'Orb.).

West side of Pichincha and Papallacta. There seems, however, to be a slight difference in the eastern and western forms. According to our skins, the western birds have the forehead slate-colour, with a black centre to each feather, and the crown of the female is *less* rufous than that of the male, while her throat is slate-colour. But in the eastern skins both the male and female have the forehead black and no difference in the colour of the crown; both have black throats of a deeper hue than the western male.

38. VIREOSYLVIA JOSEPHÆ Scl.

3 ♂s. Mindo and Canzacota, West Ecuador, 6500 feet. Found singly.

39. VIREO CHIVI (Vieill.).

2 ♂s, 3 ♀s. San Nicolas, West Ecuador, in September. With the exception of the female having a shorter wing, the sexes do not differ.

40. CYCLORHIS NIGRIROSTRIS Lafr.

We collected specimens at Milligalli and Gualea, West Ecuador, and also at Baeza, East Ecuador, which appear to be exactly alike.

41. ATTICORA CYANOLEUCA (Vieill.).

We met with this Swallow in many places at altitudes of from 600 feet to 10,000 feet.

42. ATTICORA CINEREA (Gm.).

One male shot on the dead branch of a tree at Nanegal.

43. ATTICORA TIBIALIS (Cass.).

Santo Domingo, W. Ecuador, where it was generally seen sitting on the trees or flying around the clearing close to the edge of the forest.

44. STELGIDOPTERYX RUFICOLLIS (Vieill.).

Archidona, at the foot of the Eastern Andes, was the only place where we met with these Swallows. They often flew into the huts in numbers to sleep during the hot hours of the day.

45. DIGLOSSA SITTOIDES (Lafr. & D'Orb.).

Papallacta and Pichincha, E. and W. Ecuador, 11,500 feet.

46. DIGLOSSA ALBILATERALIS Lafr.

Papallacta and Pichincha. Often seen in company with *D. sittoides*. The bill is wholly black in the males, but in the females the base of the mandible is yellowish horn-colour. Iris black in the male, and brown in the female.

47. Diglossa aterrima Lafr.

This species we found very plentiful in the neighbourhood of Quito, and we shot many of them with a blowpipe in the gardens of the British Consulate. They are restless birds, and search every leaf and plant for insects in a most thorough and systematic manner. They frequently flew in at our open windows and doors to hunt about the room for spiders. A pair of them bred in the "patio" of the Consulate in November. Three different sites were chosen, and every time the nest was pulled to pieces by the Humming-birds (*Petasophora iolata*) which had built in the same "patio." At length they were allowed to complete a nest among the sword-like leaves of a species of aloe. It was built of roots and moss, and was ingeniously suspended from the sharp thorns on the edges of the leaves, about two feet and a half from the ground. Two blue eggs, speckled with red, were laid, but the nest was destroyed by the gardener before the young were hatched. During our stay in Quito, we shot an almost pure albino of this bird on Pichincha. The young are very rusty-looking and speckled, and have the outer margin of the wing-feathers brown.

48. Diglossa lafresnayi (Boiss.).

We shot a good series at Nanegal in July, and also found them rather plentiful around Quito (though not in the city) and along the Western Andes up to 10,000 feet. Our females appear to have the basal half of the mandible yellowish. They seem to be pugnacious birds, and on several occasions I saw them fighting with other species along the hedges near Quito.

49. Diglossa personata (Fraser).

Plentiful at Nanegal and Intag in July, and along the Western Andes up to 10,000 feet. Unlike other members of this genus which we came across, these birds were in small flocks of seven or eight. The iris is reddish, and in some specimens inclines to bright red.

50. Diglossa indigotica Scl.

This species ranges to a lower altitude than the preceding five, and we only met with it below Canzacota at about 5000 feet. We obtained two males and one female. The latter is not nearly so bright a blue as the former. It is evidently not a common bird in Ecuador.

51. Conirostrum sitticolor Lafr.

Rather plentiful at Papallacta in February, and also on Pichincha up to 11,000 feet in November, December, and January.

52. Conirostrum fraseri Scl.

Also numerous on both the Eastern and Western Andes, and frequently met with in the gardens of Quito. A pair built a nest at the British Consulate in December. It was about eight feet from the ground, in a very open shrub, but carefully concealed by the large growing leaves. It was mostly composed of dry grass and moss and lined with hair, and contained only two eggs—very round, and spotted with red.

I find no difference in the appearance of the sexes.

53. Dacnis cœrebicolor Scl.

♂. Santo Domingo, about 600 feet, in October. The species was evidently not common there, as this was the only specimen we saw. I caught it in a butterfly-net under the eaves of a hut while it was hunting for spiders in the thatch. The legs and feet are dark red. Iris also dull red.

54. Dacnis egregia Scl.

A large series shot at Nanegal, Gualea, and Intag in July and August. At Nanegal flocks arrived suddenly, and a few days later not an individual was to be seen. Young males in the female garb predominated. One day I counted sixteen in one very small tree. They are active birds, never still for an instant, and search every branch and leaf for insects.

55. Dacnis pulcherrima Scl.

2 ♂s, 1 ♀. Santo Domingo and Guanacillo in October.

The males seem to be distinguishable by a large white spot on the inner web of the outer rectrices. This species seems solitary in its habits. We found it in the orange-trees, where it was very difficult to shoot, as it kept in the thickest parts.

56. CHLOROPHANES ATRICAPILLA (Vieill.).

This seems to belong to a West-Ecuadorian subspecies of *C. atricapilla*, of which we shot a great number at Santo Domingo and Guanacillo. The latter is the name of a negro "rubber-hunter's" hut in a very small clearing in the forest, a day's walk from the former place. These birds mostly frequent the banana plantations, and by tying a bunch of the ripe fruit to one of the trees we managed to get a great number of them. The females have the chin very yellow, and are more yellowish green generally than the young males.

57. CŒREBA CÆRULEA L.

♀. Archidona, E. Ecuador, in April. Shot on an orange-tree close to the hut.

58. CERTHIOLA MEXICANA (Scl.).

7 ♂s, 3 ♀s. Intag and Milligalli, W. Ecuador, and Baeza, E. Ecuador, with no variation. I found a nest at Intag in July, in a bush about four feet from the ground. It was dome-shaped, and contained two eggs—white, speckled with red. These little birds cling to the flowers on the tall trees, and extract the insects from them.

[To be continued.]

XXV.—*Notices of recent Ornithological Publications.*

[Continued from p. 151.]

36. *Allen on the Birds of Santa Marta.*

[List of Birds Collected in the District of Santa Marta, Colombia, by Mr. Herbert H. Smith. By J. A. Allen. Bull. American Mus. Nat. Hist. xiii. p. 117, 1900.]

The well-known collector Mr. Herbert H. Smith obtained 2814 bird-skins in the neighbourhood of Santa Marta,

U. S. of Colombia, between the sea-level and an altitude of 8000 feet, on the Sierra Nevada, from May 4th, 1898, to Sept. 7th, 1899. Mr. Jesup purchased this collection, and presented it to the American Museum of Natural History. Mr. Allen now gives us an account of it, inserting in their places other species previously recorded from this locality.

The principal existing authorities on this attractive Avifauna are Messrs. Salvin and Godman (Ibis, 1879–80), and Mr. Bangs, several of whose papers we have lately noticed. Mr. Allen's present list includes the names of 388 species, of which the following 8 are described as new :—

Odontophorus atrifrons.
Myiobius assimilis.
Ochthœca jesupi.
—— olivacea.
Attila parvirostris.
—— rufipectus.
Myiotherula sanctæ-martæ.
Hylophilus brunneus.

On the general relation of the birds of Santa Marta Mr. Allen writes as follows :—

"In respect to the faunal relationships of the Santa Marta region, it may be said that while many wide-ranging species common to a large part of tropical America are found here, many of them are represented by geographical forms peculiar to this region, while in the higher parts of the Sierra Nevada there occur many distinct species quite unlike their nearest congeners found elsewhere, and belonging for the most part to genera not found in the adjoining low coast-region, but which occur in the Cordilleras of other parts of northern South America. Also it may be noted that many of the species in the list which are abundant at the lower levels, are not recorded from points above 5000 to 6000 feet.

"It is further evident that the avifauna of the Bogotá region is very different from that of the Santa Marta district, and also that the home of many 'Colombian' species is to be looked for elsewhere than in Eastern Colombia. Indeed, a very different set of birds was met with by Wyatt in 'the eastern Cordillera of the State of Santander,' in the Bucaramanga district, midway between Santa Marta and Bogotá."

37. *Aplin on the Birds of Carnarvonshire.*

[The Birds of Lleyn, West Carnarvonshire. By O. V. Aplin, F.L.S. Zoologist, 1900, p. 489.]

From an ornithological point of view Wales is perhaps somewhat less known than any other part of Great Britain, and an article on its birds is on that account the more welcome. Mr. Aplin writes of a portion of the Principality with which few of us are intimately acquainted, and which is of special interest not only from its proximity to Ireland, but from its varied nature, combining as it does the beauty of gorse-covered tracts and moorlands with bold cliffs, islands, hills, marshes, and sandy shores. Few points seem to have escaped the notice of the author or of his correspondent, Mr. T. A. Coward, unless it be the breeding of the Peregrine on St. Tudwal's Island.

38. *Astley on Birds in freedom and in confinement.*

[My Birds in Freedom and Captivity. By H. D. Astley. J. M. Dent and Co., London. Pp. i–xvi, 1–254. Price 12*s.* 6*d.*]

Among the various works submitted to our notice there are many that are pleasing and many that are profitable, but comparatively few that leave us still unsatisfied and only wishful for more. Such, however, is the case with that of Mr. Astley. He disarms our criticism in the preface by frankly stating that his book is not to be considered scientific, but rather popular, and proceeds to furnish us with a series of delightful sketches of bird-life, which exhibit at the same time a true love of the subject, and every mark of careful observation, be it at home, on the Continent, or in Egypt.

Posing as the reverse of an "ordinary unobserver" of birds, he discourses in happy phrase on their behaviour and appearance, while he makes a valuable addition to his subject in the special chapters on the management of those kept in cages and aviaries, and on the cruelty too often practised towards the feathered race.

Perhaps the author's humanitarian ideas are not quite consistent with his practice of retaining so large a number of birds in confinement, but we are far from feeling inclined to be captious when we observe his evident anxiety for their welfare, and their equally evident happiness under the circumstances. He has, moreover, been thus enabled to make notes upon the plumage of males and females, and upon the moult; while his accounts of the rearing of Gold-crested Wrens from the nest, and of the Cardinal Grosbeak breeding in a garden, are especially worthy of notice, as is the final chapter on Storks and Cranes.

Mr. Astley, however, by no means confines himself to his aviaries; he gives us accounts of his observations upon the Hoopoe, and upon two species of Rock-Thrush met with during his travels, and furnishes us in addition with a large number of illustrations, chiefly or entirely of his own drawing, of which those of the Hoopoe, the Ring-Ousel, the Oyster-catcher, and the Great Black-backed Gull are perhaps the most successful.

We are somewhat surprised, however, to notice that he considers Morris an "eminent ornithologist" worthy to be coupled with Gould; while he is decidedly mistaken in attributing Dippers invariably to mountain torrents, Lories to New Zealand, and, at the present day, Bearded Tits to the fens of Cambridgeshire.

39. *Bangs on a new Rice-Grackle.*

[Description of a new Rice-Grackle. By Outram Bangs. Proc. New England Zool. Club, ii. p. 11, 1900.]

The Colombian form of *Cassidix* is separated as *Cassidix oryzivora violea.*

40. *Bangs on Birds from Panama.*

[List of Birds collected by W. W. Brown, Jr., at Loma del Leon, Panama. By Outram Bangs. Proc. New England Zool. Club, ii. p. 13, 1900.]

Mr. Bangs records the names of the species represented in a collection of 752 skins formed at Lion-Hill Station on the Panama Railway by Mr. W. W. Brown, Jr. Among these three are described as new—*Mionectes oleagineus parvus, Myrmelastes celerus,* and *Saltator lacertosus.*

41. *Beal on the Food of the North-American* Icteridæ.

[Food of the Bobolink, Blackbirds, and Grackles. By F. E. L. Beal, B.S. Bull. U. S. Dep. of Agric., Div. of Biol. Survey, No. 13. 8vo. Washington, 1900.]

It is always with pleasure that we take up one of the careful and exhaustive monographs of the U. S. Department of Agriculture. In that before us Mr. Beal has undertaken to weigh the evidence for and against the chief members of the family Icteridæ, as regards their harmful propensities; giving at the same time most instructive diagrams representing the elements that constitute the birds' food, a table of "distribution of stomachs," and a map of the range of the Bobolink. This species holds an exceptional position, causing immense damage at planting-time and harvest to the rice-crops of the South, but being beneficial and a general favourite in the Eastern States: so that the good might well outweigh the evil everywhere, were it not for the immense size of the flocks. Several of the other members of the Icteridæ must for the present be allowed to do more harm than good, but the majority are decidedly useful, and will be still more so as waste lands continue to come under cultivation. In many States protection might well be afforded to such birds, or more widely extended, for the amount of injurious insects and seeds of weeds they consume is prodigious.

42. *Bingham and Thompson on Birds from Upper Burma.*

[On the Birds collected and observed in the Southern Shan States of Upper Burma. By Col. C. T. Bingham, F.Z.S., and H. N. Thompson, F.Z.S. J. A. S. B. lxix. pt. 2, p. 102, 1900.]

An account is given of a collection of about 350 specimens representing 239 species obtained during a tour through the Southern Shan States of Upper Burma made in the cold weather of 1899–1900. Two of these—*Cerasophila thompsoni* (a new genus of Bulbul allied to *Hypsipetes*) and *Cyornis brevirostris*—have already been described as new in the 'Annals of Natural History' (ser. 7, vol. v. p. 359, 1900). The rare *Sitta magna* was observed on Mount Lor-San-Ba and at Taunggy, and two specimens (♂ et ♀) were procured at the latter locality.

43. *Bishop on the Birds of the Yukon Region.*

[Birds of the Yukon Region, with Notes on other Species. By Louis B. Bishop, M.D. North American Fauna, No. 19, p. 47, 1900.]

Under instructions from the Biological Survey of the U. S. Department of Agriculture, Messrs. Osgood and Bishop proceeded to Skagway, Alaska, in the summer of 1899, thence over the White Pass to the headwaters of the Yukon, and down the whole length of this mighty river to St. Michael on the Pacific. After a general account by Mr. Osgood of the country traversed, which is well worthy of perusal, come reports on the Mammals and Birds of the Yukon region. The latter, drawn up by Dr. Bishop, contains the names of 171 species arranged according to the Check-list. Three new subspecies are described as *Canachites canadensis osgoodi*, *Sayornis saya yukonensis*, and *Contopus richardsoni saturatus*. The introduction contains a good general dissertation on the Avifauna, and lists of species from the various localities. The summer visitors in the Yukon basin above Fort Yukon are given as 42 in number, of which 13 have their "centre of distribution" in Eastern North America.

44. *Cardiff Naturalists on the Birds of Glamorgan.*

[The Birds of Glamorgan. Compiled by a Committee of the Cardiff Naturalists' Society. 4to. Cardiff, 1900. Pp. xxv & 163. Price 8s.]

We can hardly praise very highly this latest contribution to our knowledge of the Faunas of the Counties of Great Britain. The introduction gives a very fair idea of the nature of the district and of its scenery, but the list of species which completes the work scarcely gives enough information to justify its publication. Still it may be taken as a preliminary list, on which to ground others, and may afford encouragement to future workers to pursue their investigations. The Welsh names of the birds will doubtless be found useful.

The Rusty Grackle, the Rock-Thrush, and the Carolina Crake are claimed as stragglers, while the Golden Oriole is supposed to have bred in the county, and the Hawfinch has recently extended its range to the district.

45. *Clarke on the Migration of Birds.*

[Bird Migration in Great Britain and Ireland. Third Interim Report of the Committee, consisting of Prof. Newton (Chairman), Rev. E. P. Knubley (Secretary), Mr. John A. Harvie-Brown, Mr. R. M. Barrington, Dr. H. O. Forbes, and Mr. A. H. Evans, appointed to work out the details of the Observations of Migration of Birds at Lighthouses and Lightships, 1880–87. Statement furnished to the Committee. By Wm. Eagle Clarke. Rep. Brit. Assoc. Adv. Sci., Bradford, 1900.]

Mr. W. E. Clarke, having concluded his laborious task of summing up the results of the Migration Reports of 1880–1887, has turned his attention to the movements of the several species, and now puts before us in most able style the conclusions at which he has arrived in the case of the Song-Thrush and White Wagtail, from the evidence of the aforesaid Reports and from information gathered from ornithologists inland. He holds out hopes, moreover, that this may be only an earnest of further contributions.

Sufficient evidence has now for the first time been accumulated to write an authoritative history of the status of each species, of its abundance, its time of appearance, and its route on migration; for nearly all birds seem to migrate to a greater or less extent in our islands.

The Song-Thrush is shown by Mr. Clarke not to participate in the east-to-west autumnal, or the west-to-east vernal, movements across the North Sea; the first home-bred individuals emigrate in August, though few leave us until September and October; while they return late in February and in the first half of March. The birds of passage arrive in the latter days of September, and continue to do so until mid-November; they gradually pass on to warmer climes—some remaining with us and spreading over the inland districts—and return late in March, to depart once more in April by the way in which they came. The *regular* limits of immigration are from South Shetland and the Orkneys to Norfolk, the birds reaching our northern and eastern coasts, and in some cases proceeding overland as far as Ireland, but most move southwards on their way to the Continent. Severe weather seems to cause "rushes."

The White Wagtail comes from both the north-east and north-west, and is much more plentiful on our west coast than on our east, though it breeds but rarely on either. The individuals that pass the Shetlands probably arrive from Iceland and the Faroes. It appears in the south in March and April, and, on its return, visits us only from mid-August to mid-September.

46. *Cooke on the Birds of Colorado.*

[The Birds of Colorado, a second Appendix to Bulletin No. 37. By W. W. Cooke. Bull. Agric. Exp. Sta. Agric. Coll. of Colorado, 56, 1900.]

This memoir gives the additions made to the List of the Birds of Colorado (*cf.* Ibis, 1898, p. 161) during the past three years, and is paged consecutively with two former papers on the same subject (Bulletin, 37 and 44). The additional species are 27 in number, and 15 more have been ascertained to breed in the State. The total number of species and subspecies now known to occur in Colorado is 387.

47. *Druitt's (Mrs.) Memoir of Lord Lilford.*

[Lord Lilford, Thomas Littleton, fourth Baron, F.Z.S. President of the British Ornithologists' Union. A Memoir by his Sister, with an Introduction by the Bishop of London. 8vo. 1901. Price 10*s.* 6*d.*]

This volume will, we are sure, be read with very great interest by all the Members of our Union, and by the many other friends and acquaintances of our late President. The story told of his life and its principal incidents contains, as might have been expected, numerous allusions to Birds, one of the main subjects, as we well know, that occupied his attention from early youth. It is, moreover, illustrated by some beautiful plates drawn by Thorburn, Lodge, and others, and is prefaced by a capital likeness of our much-esteemed friend.

48. *Dubois' 'Synopsis Avium.'*

[Synopsis Avium. Nouveau Manuel d'Ornithologie, par Alphonse Dubois. Fasc. II. Pici, Heterodactylæ, Amphibolæ, Anisodactylæ, Macrochires; Fasc. III. Macrochires, Tracheophonæ, Oligomyodæ; Fasc. IV. Tyrannidæ, Hirundinidæ, Ampelidæ, Paramythiidæ, and Muscicapidæ. Bruxelles, 1900. Pp. 81–288.]

In 1890 (Ibis, 1900, p. 381) we recorded the issue of the first part of this useful Manual. Since that date three more 'fasciculæ' have been issued, the contents of which are indicated in the titles given above.

The following species are figured in these parts:—Pl. ii. Heads of *Melanerpes cruentatus* and *M. hargitti* (sp. nov.) and of *Hapaloderma rufiventre*; Pl. iii. *Rhinopomastes cabanisi, Scytalopus analis*, and *Hypocnemis nævioides*; Pl. iv.* *Grallaria gigantea* and *Myrmotherula brevicauda*; Pl. v. *Thamnophilus torquatus* and *Dendrocolaptes sancti-thomæ*; Pl. vi. *Picolaptes albo-lineatus* and *Dendrornis guttata*.

49. *Finn on the Tracheal Bulb of Ducks.*

[Note on the Structure and Function of the Tracheal Bulb in male *Anatidæ*. By F. Finn, B.A., F.Z.S., Deputy Superintendent of the Indian Museum. J. A. S. B. lxix. pt. ii. p. 147, 1900.]

The subject of this paper is one of considerable interest, and Mr. Finn is doing us a great service in extending our knowledge, as regards the condition of the trachea, to species not heretofore examined. These are *Nettopus coromandelianus*, where there is no bulb; *Æx galericulata, Casarca rutila*, and the hybrid *Cairina moschata* × *Anas boscas*, where that structure occurs to a greater or less extent. A table of the sounds emitted by Ducks and Drakes of various species is added, to show how far the voice is modified by the formation. Mr. Finn thinks that it will be proved that the male cannot utter quacks or croaks similar to those of the female.

50. *Finn on the Cormorant of the Crozettes.*

[On the Form of Cormorant inhabiting the Crozette Islands. By F. Finn, B.A., F.Z.S., Deputy Superintendent of the Indian Museum. J. A. S. B. lxix. pt. ii. p. 143, 1900.]

It is here pointed out that a specimen of a Cormorant from the Crozettes in the Calcutta Museum (originally received from the South African Museum) is the type of *Hypoleucus melanogenis*, Blyth (J. A. S. B. xxix. p. 201), and is most nearly allied to, if not identical with, *Phalacrocorax verrucosus* (*cf.* B. M. C. B. xxvi. p. 394).

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* Erroneously numbered "Pl. vi."

51. *Finn on the Birds of the Indian Museum.*

[A Guide to the Zoological Collections exhibited in the Bird Gallery of the Indian Museum. By F. Finn, B.A., F.Z.S., Deputy Superintendent. 8vo. Calcutta, 1900. 131 pp. Price 12 annas.]

We do not feel inclined to criticize this guide too harshly, for it is on the whole an undoubtedly good piece of work, which will prove of great service to those entering upon the study of Birds in India; while its arrangement, being that of a general introduction followed by a separate account of each family, is probably the most suitable that could be found for such persons' requirements. With a view, however, to assisting the author, should a second edition be called for, we venture to mention a few points which we fear may detract from the value of a book which is especially intended for beginners. Such words as "omnivorous" and "exceptional" are used in too loose a sense, which is calculated to mislead the reader. For example, on p. 76 the *Gallinæ* are said to be "exceptional among birds" as regards polygamy, though on pp. 91 and 96 other instances are given of the habit. The *Palamedeidæ* are stated to be "unique" in having no uncinate processes; "among existing forms" should here be added. Certain *Anatidæ* are declared to have "horny teeth" in the jaws, but it should be explained that such are not really teeth. Again, spurs can hardly be called "epidermal" structures, blue is scarcely to be termed a rare colour in the Class, while on p. 96 the eighth line reads as if the Curlew were a Sandpiper.

The author lays little stress on Anatomy as a guide to Taxonomy, while the *Impennes* in his eyes rank as an Order equal to the *Carinatæ* and the *Ratitæ*; he follows the classification of the 'Fauna of British India' to a great extent, but reduces the Orders of that work to Suborders, and does not always preserve the sequence there adopted.

52. *Finn and Turner on two rare Indian Pheasants.*

[On Two Rare Indian Pheasants. By F. Finn, B.A., F.Z.S., Deputy Superintendent of the Indian Museum, and Lieut. H. H. Turner. J. A. S. B. lxix. pt. ii. p. 144, 1900.]

In the Chinn Hills in Upper Burma (about 23° N. L. and 94 E. L.) Lieut. Turner procured last year examples of two Pheasants, which have been examined by Mr. Finn. One of them is referred to ***Phasianus humiæ***, the other to a Kaleege closely allied to ***Gennæus davisoni*** and ***G. williamsi***, but possibly distinct, for which the name ***G. turneri*** is suggested by Mr. Finn.

53. *Finsch on Birds from New Guinea.*

[On a Collection of Birds made by Mr. Karl Schädler at Sekru (North-west coast of New Guinea). By Dr. O. Finsch. Notes Leyden Mus. xxii. p. 49, 1900.]

Dr. Finsch catalogues a collection of birds made by Karl Schädler at Sekru, on the southern coast of the peninsula which borders Macluer's Bay on the south. The 247 specimens are referred to 76 species, all previously known.

54. *Finsch on a new* Dicæum.

[Ueber eine anscheinend neue Art *Dicæum* vom Arfak-Gebirge (Neu-Guinea) von Dr. O. Finsch. Notes Leyden Mus. xxii. p. 70, 1900.]

The new ***Dicæum arfakianum*** is from the Arfak Mountains in New Guinea. A single specimen in the Leyden Museum, obtained through Bruijn in 1876, has hitherto been confounded with ***D. pectorale***.

55. *Finsch on the* Cuculi *of the Leyden Museum.*

[Zur Catalogisirung der ornithologischen Abtheilung. Von Dr. O. Finsch. Notes Leyden Mus. xxii. p. 75, 1900.]

In Schlegel's 'Catalogue of the Cuckoos in the Leyden Museum,' published in 1866, only 15 species were enumerated, represented by 209 specimens. The collection of Cuckoos now contains 560 specimens, referable to 40 species, of which ***Chrysococcyx innominatus***, from the small island of Kisser near Timor, is described as new. Many useful notes are given upon the other forms. A second example of the rare and curious *Heterococcyx neglectus* Schl. has been obtained.

56. *Forbes on Birds in the Derby Museum, Liverpool.*

[Catalogue of the Lizard-tailed (Saururæ), the Toothed (Odontornithes), and the Ostrich-like (Struthiones) Birds, and of the Tinamous (Tinami) and the Divers (Colymbi), in the Derby Museum. By Henry O. Forbes, LL.D. Bull. Liverp. Mus. iii. p. 25, 1900.]

Dr. Forbes continues his catalogue of the birds in the Museum under his charge, and in the present article treats of the Saururæ, Odontornithes, Struthiones, Tinami, and Colymbi. Some remarkable statements are made concerning the variations in size and shape observed in the bones of a large series of skeletons of Moas, which were disinterred under Dr. Forbes' eyes in New Zealand, the conclusion being that the species of *Dinornis* have been unduly augmented by describers.

57. *Fricker's 'Antarctic Regions.'*

[The Antarctic Regions. By Dr. Karl Fricker. (Translated by A. Sonnenschein.) London: Swan Sonnenschein & Co., 1900. 1 vol. 292 pp. Price 7*s.* 6*d.*]

This is a useful volume of reference for those who are interested in Antarctic matters generally and in the new National Antarctic Expedition specially, as it contains a full account of the history of the discovery of the South Polar lands and their physical structure. But the author evidently knows little about Natural History, and the few lines devoted to the Antarctic Avifauna (pp. 270-71) are misleading and inaccurate. The author seems never to have heard of the Emperor Penguin—the largest and finest bird in Antarctica. Nor does he appreciate the value of Penguins' flesh as an article of diet in high Southern latitudes (see above, p. 131). The article on the birds of Antarctica, published in this Journal in 1894 (p. 494), is not even mentioned in the Bibliography.

58. *Godman and Salvin's 'Biologia Centrali-Americana.'*

[Biologia Centrali-Americana; or, Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. Edited by

F. DuCane Godman and Osbert Salvin. (Zoology.) Parts CXXXIX.-CXL. 4to. London, 1898-1900. (Published for the Editors by R. H. Porter, London.]

With great satisfaction we record the issue of three more portions of the "Aves" of the 'Biologia Centrali-Americana'—continuing the third volume from p. 41 to p. 88. In our last notice of this important work ('Ibis,' 1898, p. 301) we mentioned the commencement of the Accipitres with the Ospreys (Pandionidæ). The bird-parts in the numbers since issued are devoted to the Falconidæ, beginning with the Harriers, Hawks, and Buzzards, nearly after the systematic arrangement of the 'Nomenclator.' At the time of Salvin's death the MS. of the Falconidæ was in a forward state. Dr. R. Bowdler Sharpe has assisted Mr. Godman in completing it. An excellent figure (plate lxiii.) is given of *Morphnus guianensis*.

59. *Grant and Percival on the Birds of Southern Arabia.*

[On the Birds of Southern Arabia. By W. R Ogilvie Grant. With Field Notes by A. Blayney Percival. Nov. Zool. vii. pp. 243, 591, pl. x.]

Mr. Ogilvie Grant gives an account of the birds collected by Mr. A. Blayney Percival and his taxidermist, Mr. W Dodson, during an expedition into the interior of the territory of Aden and the adjoining districts, sent out by the governor of that place in the spring of 1899. The exact route is shown in a map attached to the paper. Mr. Dodson unfortunately contracted a bad fever and died at Aden, just as he was preparing to return home.

The present article contains the results of this expedition as regards birds, but incorporates previous information on the same district, so that we have in it a complete account of the Avifauna of Aden up to the present time. Col. Yerbury ('Ibis,' 1896, p. 13) attributes 142 species to this Avifauna; the list before us contains 188 names, amongst which *Œdicnemus dodsoni, Telephonus percivali*, and *Ammomanes saturatus* are species discovered on this occasion. Other interesting additions to the Avifauna are the Sugar-bird of

Palestine (*Cinnyris osea*) and a small Hornbill (*Lophoceros nasutus*) previously noted by Hemprich and Ehrenberg.

Many of the European Warblers (*Sylvia nisoria, S. atricapilla, S. cinerea, S. hortensis, Phylloscopus trochilus, P. sibilatrix,* &c.) occur at Aden in the autumn.

60. *Hall on the Birds of Victoria.*

[The Insectivorous Birds of Victoria, with Chapters on Birds more or less useful. By Robert Hall. 8vo. Melbourne, 1900. Pp. i–viii, 1–260.]

In pursuance of his design of furnishing in this little book a homely but useful account of the Insectivorous Birds of Victoria, Mr. Hall has arranged them in groups according to the nature of their food. Under the scientific name of each species he gives the derivation and the meaning, coupled with a phonetic representation of the same, marked with the quantities of the separate syllables. In general he will be found to be correct, but there are several errors, for instance we should derive *Podargus* not from "*podar*, swift-footed," but from *pod-argus*.

The notices of Geographical Distribution, and the keys to the male, female, and young of each species, are decidedly valuable; while we must congratulate the author on the pleasantly written life-histories of the various birds, and on the useful information as to local names, migration, length of incubation, and so forth, which he and several zealous correspondents have been able to gather. The fact that the Sky-Lark is now firmly established in Australia is duly noticed in its place.

61. *Hall upon Changes of Plumage.*

[Notes on the Plumage Changes of *Petrœca phœnicea* (Gould), *Pachycephala gutturalis* (Latham), and *Micrœca fascinans* (Latham). By Robert Hall. Proc. R. Soc. Victoria, xiii. p. 10, 1900.]

Mr. Hall describes the changes of plumage from youth to age of three common Australian birds. In *Petrœca* and *Micrœca* the changes "are performed in two acts," while in *Pachycephala* there appear to be "three distinct and opposed plumages."

62. *Hall on Birds from Kalgoorlie, W. A.*

[Notes on a Collection of Bird-skins from Kalgoorlie, W. A. By Robert Hall. Trans. R. Soc. S. Australia, 1900, p. 24.]

This is a list, with notes, of a collection of birds made by Mr. Lindsay Cameron at Kalgoorlie, one of the new gold-districts in the interior desert of Western Australia. Thirty-three species were represented in the collection, and ten others well-known were noted in addition by Mr. Cameron. A *Xerophila* "does not agree with any known species." See Vict. Nat. xvi. no 2.

63. *Hartert on the Birds of Buru.*

[The Birds of Buru, being a List of Collections made on that Island by Messrs. Doherty and Dumas. By Ernst Hartert. Nov. Zool. vii. p. 226.]

The specimens in the Tring Museum collected in Buru, near Kayeli, by Doherty, and by Dumas (sent there by Mr. Everett) on Mount Mada at an elevation of about 3000 ft., are referred to 64 species. Among those from the latter locality are a number related to Malayan forms, which were not previously known to extend into the Moluccan area.

The following species and subspecies are described as new:—

Strix cayelii, Prioniturus mada, Eudynamis cyanocephala everetti, E. orientalis salvadorii, Micrœca addita, Zosterops obstinatus, Androphilus disturbans, and *Reinwardtœna reinwardti albida. Erythromyias buruensis* and *Geocichla dumasi* are figured.

64. *Hartert on some Palæarctic Birds.*

[Some Miscellaneous Notes on Palæarctic Birds. By Ernst Hartert. Nov. Zool. vii. p. 525.]

Mr. Hartert thinks it "necessary to treat *Certhia familiaris* and *C. brachydactyla* as two species." He also makes a new subspecies of the British Nuthatch as *Sitta europæa britannica,* recognising 4 subspecies in all. Of *Dendrocopus major* he proposes to acknowledge no less than 13 subspecies, amongst which *D. major anglicus* is new. Of *Strix flammea* he makes at least 5 subspecies in Europe and North Africa, and refers the British form to *Strix flammea kirkhoffi*. We do not profess to agree with these proposals, but Mr. Hartert has a right to state his own views and has something to say for them.

65. *Hartert on the Genus* Scæorhynchus.

[On the Genus *Scæorhynchus*, Oates. By Ernst Hartert. Nov. Zool. vii. p. 548.]

Two species of the Paradoxornithine genus *Scæorhynchus* are usually recognised as *S. ruficeps* and *S. gularis*. Mr. Hartert now proposes to divide the former into 2 subspecies and the latter into 3. Two of these subspecies are described as new—namely, *S. ruficeps bakeri* and *S. gularis transfluvialis*.

66. *Hartert on the Birds of the Lingga Islands.*

[List of a Collection of Birds from the Lingga Islands. By Ernst Hartert Nov. Zool. vii. p. 549.]

The Lingga Islands are a little group south of Singapore, off the coast of Sumatra, to which the late Alfred Everett sent a collector. Examples of 39 species were obtained, all of which were purely Malaccan forms. This is believed to be the first collection of birds ever made in these islands. It is, of course, by no means complete.

67. *Hartert on the Birds of the Banda Islands.*

[The Birds of the Banda Islands. By Ernst Hartert. Nov. Zool. vii. p. 551.]

The Banda Islands south of Ceram have been visited by Salomon Müller, Rosenberg, Wallace, and other naturalists. Mr. Hartert writes on the collections made there for Tring by Mr. H. Kuhn and Mr. W. Doherty, which contain representatives of 29 species. These are enumerated, and notes are added.

68. *Hartert on* Turacus chalcolophus.

[On *Turacus chalcolophus* Neumann. By Ernst Hartert. Nov. Zool. vii. p. 278.]

This fine Touraco is the East African representative of *T. schalowi*, of Benguela, and *T. livingstoni* of Zambesia. It is described and figured from an example obtained by Mr. Oscar Neumann in the forests of Gurui, in German East Africa. There is a good specimen of *T. schalowi* now living in the Zoological Society's Gardens, presented by Mr. W. L. Sclater. (See P. Z. S. 1899, p. 828.)

69. *Hellmayr on the Genus* Polioptila.

[Bemerkungen über die neuweltliche Gattung *Polioptila*, nebst Beschreibung einer neuen Subspecies aus Peru. Von C. E. Hellmayr. Nov. Zool. vii. p. 535.]

Mr. Hellmayr reviews the American genus *Polioptila*, of which he has studied a series of about 70 specimens. Of the black-headed group he recognises six subspecies, two of which (*P. nigriceps anteocularis* from Colombia, and *P. n. major* from Peru) are characterized as new.

70. *Hudson's 'Nature in Downland.'*

[Nature in Downland. By W. H. Hudson. Longmans, Green, & Co. London. Pp. i–xii, 1–307. Price 10*s*. 6*d*.]

Mr. Hudson, who writes from the "æsthetic point of view of a lover of nature," gives us a highly poetical description of the South Downs of Sussex, with their adjacent low lands and coast. He revels in the beauty of the rolling uplands, with their wealth of flowers, their abundant bird and insect life, while he makes to pass before our gaze the inhabitants of the plain—shepherds, labourers, cattle, and sheep—with their characteristic habits and voices, comparing mankind in the country with the degraded dwellers in the town.

Birds are not a special feature in the book, but an interesting account is given of the "Wheatear harvest"—not yet entirely a thing of the past; while Stonechats, Swallows, Magpies, and other species provide matter for many a page. We are glad to hear that the Badger still holds its ground in the district; but we must dissent from the author's statement that the Stone-Curlew has ceased to breed in the county, nor can we imagine what are the species of Terns that have disappeared in the present century.

Many of the full-page illustrations give a very good idea of the scenery of the Downland.

71. *Jacobi on the Eating of Gravel by Birds.*

[Die Aufnahme von Steinen durch Vögel. Von Dr. Arnold Jacobi. Arb. Biol., Abth. f. Land- u. Forstwirthsch. K. Gesundheits, i. p. 223, 1900.]

In this article Dr. Jacobi, following the lead of Professor Röry, treats of the swallowing of stones and grit by birds, and adduces what he considers to be new or hitherto unpublished facts. Galline, Columbine, Picarian, and Corvine species perhaps afford the best instances of the habit, marsh and shore-birds vary somewhat in their adherence to it, while those that swim hardly practise it at all. Instinct makes it customary, while it is of course useful from a physiological point of view, as an assistance to digestive action.

72. *Jacobi on the Avifauna of Japan.*

[Verbreitung und Herkunft der höhern Thierwelt Japans. Von Dr. Arnold Jacobi. Zool. Jahrb. (Syst.) xiii. p. 463, 1900.]

Dr. Jacobi was induced by a study of the Mollusks of Japan to extend his researches to the distribution and origin of the Vertebrates of the islands. His difficulties were enhanced by the fact that since the days of Temminck and Schlegel a custom has arisen of considering Japan as a sort of mother-country with various dependencies; while the writers have failed to distinguish properly, in the case of birds, between residents, migrants, and stragglers. Seebohm's work, though by no means perfect, is perhaps the best, and his nomenclature and order are adopted.

Japan proves to be a complex area, containing endemic, arctic, and tropical species—some of them more or less cosmopolitan, and some peculiar to it—as might be expected in a long chain of islands, where various climates are found in a limited space. All this he shows by tables of 41 Mammals and 155 Birds, with remarks on Fishes, Amphibians, and Reptiles added. The birds are marked according to the islands on which they occur, an asterisk denoting for those found only in Japan.

An examination of their distribution and status, aided by the light which geology affords, emphasizes the fact that immigrations must have occurred from the north and from the south at different epochs, while even in the various parts of the same island striking divergencies are noticeable.

The author leaves out of consideration the Kuriles as being arctic, and the Lūi-Kui and Bonin Islands as mainly tropical.

73. *Madarász on Birds from German New Guinea.*

[Beiträge zur Ornis Deutsch-Neu-Guinea. (Ludvig Biró's Sammelergebnisse.) Mitgetheilt von Dr. J. v. Madarász. Termeszet. Fuzetek, xxiv. p. 73, 1901.]

The new species represented in Ludwig Biró's first collection from the Sattelberg, in German New Guinea, were described in 1890 (Orn. Monatsb. viii. p. 1). A second series from the same locality appears to have been lost on its way home. Dr. Madarász now writes on a third collection from German New Guinea, made by Biró in the second half of 1899, which contains 86 specimens referable to 45 species, and gives the names of 9 of them with notes. One of them, *Mimeta szalayi*, is described as new.

74. *Martens on Antarctic Birds.*

[Hamburger Magalhaensische Sammelreise Vögel, bearbeitet von G. H. Martens. Royal 8vo. Hamburg, 1900. 34 pp.]

The birds collected during the "Hamburg Magellanic Collecting-voyage" consisted of 60 specimens belonging to 44 species. In enumerating them, Herr Martens takes the opportunity of cataloguing all the forms that have been noted as occurring south of about 43° S. L. He does not, however, include the birds of the Southern Island of New

Zealand, part of which lies south of this parallel. The result is a list of 299 species, made up, as it appears to us, of three very different Avifaunas which have little or nothing to do with one another—namely, the South American element (192 sp.), the New Zealand element (59 sp.), and true Antarctic element (48 sp.).

75. *Meade-Waldo on the Birds of Hampshire.*

[The Victoria History of the Counties of England. Hampshire and the Isle of Wight. Vol. I. Westminster, Archibald Constable. 1 vol. 4to. 536 pp. 1900. Price £6 6s. for the set of 4 volumes.]

The new 'Victoria' series of County Histories, edited by Mr. H. Arthur Doubleday, is commenced by the issue of the first volume of the History of Hampshire. This is a bulky quarto, well and clearly printed on good paper, and fully illustrated by plates and maps, presenting a most attractive appearance. The volume now before us contains the whole of the natural history of the county—a branch of the work which is edited by our associate Mr. A. Trevor-Battye—and the first portion of the antiquities. The chapter on the birds has been prepared by Mr. Meade-Waldo, who discreetly follows Mr. Saunders's well-known arrangement and nomenclature. He enumerates 280 species as assignable to the Hampshire Avifauna, and gives short field-notes on each of them. We think that these remarks might have been a little more copious in certain cases and of a somewhat less general character—but possibly the author was restricted as to space. The principal local collections of birds (such as those of Mr. Hart at Christchurch, of Winchester College, and of the town of Alton) should also have been mentioned, in order to show where authentic specimens of Hampshire birds may be seen.

76. *Neumann on the Avifauna of Eastern and Central Africa.*

[Beiträge zur Vogelfauna von Ost- und Central-Afrika. III. Von O. Neumann. J. f. O. 1900, p. 185.]

This is the third and concluding part of the author's account of the birds collected during his extensive journey through

German and British East Africa and round Lake Victoria in 1893–5. (*Cf.* Ibis, 1899, pp. 140, 650.) Altogether 555 species are enumerated, and exact dates and localities, besides other notes, are always given. Interesting general remarks are also introduced at the head of each family. In the present part the following species and subspecies are described as new:—*Indicator minor teitensis, Dendromus malherbii nyansæ, Dendropicus guineensis centralis, Rhinopomastus schalowi, Bradyornis kavirondensis, Muscicapa grisola sibirica, Serinus sharpii, Xenocichla flavicollis shelleyi, Cyanomitra obscura neglecta, Cisticola prinioides, Sylviella major, Apalis æquatorialis,* and *Cossypha caffra mawensis.* Coloured figures are given of *Dendromus tæniolæmus, D. neumanni, Apalis porphyrolæma, A. griseiceps,* and *Linurgus kilimensis.* The last-named bird is a second species of a curious genus of Finches, and is closely allied to *L. olivaceus* of Cameroons. It was found on Kilmanjaro at a height of 9000 feet. A map is added to show Herr Neumann's route. The preface to this part of the memoir contains some very interesting remarks on the general characters of the faunas of the three divisions of the country traversed, which are, shortly, Southern Masailand with southern tendencies, Northern Masailand with Somali-like forms, and the basin of Lake Victoria with many well-marked West-African types—such as *Psittacus erithacus* and *Corythæola cristata.*

77. *North on a new Australian Parrot.*

[Description of a new Parrakeet from the Burke District, North Queensland. By Alfred J. North, C.M.Z.S. Victorian Naturalist, xvii. p. 91, 1900.]

Platycercus macgillivrayi, from the Burke District of Northern Queensland, is allied to *P. barnardi* and *P. occidentalis,* and is named after its discoverer, Mr. A. S. Macgillivray.

78. *Regalia on Birds' Wing-claws.*

[Unghie ai Diti I e II della Mano in Uccelli Italiani e in Altri. E. Regalia. Proc. verb. Soc. Toscana Sci. Nat. 1900, p. 3.]

Signor Regalia, one of whose former papers on the same subject we have already noticed (Ibis, 1889, p. 124), has here published his latest investigations with regard to the claws on the wings of Birds. As before, he makes three groups of species, possessing respectively a claw on the pollex, on the index, or on both; the first contains 61 forms, the second only 9, and the third 80—including cases noticed by his fellow-ornithologists. Instances of wing-claws are most common in the large group *Limicolæ*, somewhat less so in the *Accipitres*, *Gaviæ*, and *Anseres*, in the order given, while they gradually decrease in number until none are found in the *Passeres* *.

The author considers it now certain that *Gyps fulvus* and *Syrnium uralense* have claws on both digits, *Botaurus stellaris* on the index. He discusses further the probability of their existence in other groups, their extreme forms, cases where that on the index is the larger, the coexistence of spurs and claws, and the "involution" of the latter as the bird passes from the young to the adult stage.

79. *Rothschild on the Avifauna of Laysan.*

[The Avifauna of Laysan and the neighbouring Islands; with a complete History to date of the Birds of the Hawaiian Possessions. By the Hon. Walter Rothschild. London: R. H. Porter. Part III. December 1900. Price £6 6s.]

With this bulky part Mr. Rothschild brings to a conclusion his excellent work on 'The Avifauna of Laysan,' which, however, embraces an account not only of the birds of that little-known and remote island, but also a full history up to the present time of the Ornis of the whole Hawaiian group and its dependencies.

The second part of this work was published in 1893 (see Ibis, 1894, p. 315), so we have had some time to wait for the final number, but are amply repaid by the great interest of the letterpress and the number and excellence of the plates by Keulemans & Frohawk, which represent the following species:—

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* In the Passeres they may, however, occur abnormally, as in the well-known case of *Merula dactyloptera* Bp. (*Cf.* Ibis, 1881, p. 279.)

Hemignathus ellisianus.
Heterorhynchus lucidus.
Himatione virens.
—— wilsoni.
—— chloris.
—— stejnegeri.
Palmeria dolei.
Drepanis pacifica.
Drepanorhynchus funereus.
Loxops coccinea.
—— ochracea.
—— wolstenholmei.
—— cæruleirostris.
Pseudonestor xanthophrys.
Rhodacanthis palmeri.
—— flaviceps.
Chloridops kona.
Chætoptila angustipluma.
Moho nobilis.
—— apicalis.
—— bishopi.
—— braccatus.
Pennula sandwichensis.
—— millsi.
Himantopus knudseni.
Anas wyvilliana.
Bernicla canadensis minima.

We have in addition coloured representations of the nests and eggs of *Chasiempis gayi* and *Himatione virens*, and figures of a large number of bills and of other peculiar structures. *Oreomyza perkinsi* (from Hawaii) is described as a new species, and a new genus (*Drepanorhamphus*) is formed for the *Drepanis funerea* of Newton.

The total number of Hawaiian birds is now raised to 116, besides which some 12 others have been introduced. One of these, the Indian Mynah (*Acridotheres tristis*), is stated to be "very numerous and very harmful to the native birds."

The *résumé* of Henry Palmer's diary contains a quantity of interesting notes. Between December 1890 and August 1893 he collected 1832 birds, and discovered 15 species new to science. He appears to have procured specimens of all the resident Land-birds known, except some 7 that are in all probability extinct, and of most of the Sea-birds.

In his remarks on the origin and distribution of the Hawaiian Avifauna, Mr. Rothschild recognises three differently aged stocks of bird population—(1) an original stock, of uncertain origin; (2) a Polynesian branch; and (3) an American stock, which is the most recent. The Avifauna of the island of Hawaii itself is by far the richest.

80. *Rothschild and Pycraft on Cassowaries.*

[A Monograph of the Genus *Casuarius*. By the Hon. Walter Rothschild, Ph.D., F.Z.S. With a Dissertation on the Morphology and

Phylogeny of the Palæognathæ (Ratitæ and Crypturi) and Neognathæ (Carinatæ). By W. P. Pycraft. Trans. Zool. Soc. xv. (1900) pp. 109–290. Price £3 10*s.*]

Mr. Rothschild has now produced his beautifully illustrated 'Monograph of the Cassowaries,' for which he has been so long amassing materials. He has, moreover, greatly increased the value of his memoir by securing the assistance of Mr. Pycraft, who has added to it an elaborate essay on the Ratitæ and Crypturi, or, as it is now proposed to rename these two groups of birds when united, the "Palæognathæ."

Taking Mr. Rothschild's portion of the work first, we find full descriptions and other particulars of all the forms of *Casuarius* known, which are illustrated by a splendid series of 18 coloured plates. The author arranges the Cassowaries in three groups:—(1) The typical group, containing 2 species and 7 subspecies; (2) the one-wattled group, containing 2 species and 3 subspecies; and (3) the Mooruks, without throat-wattles, consisting of 4 species and 3 subspecies—making altogether 8 species and 13 subspecies.

These are illustrated by a figure of *C. uniappendiculatus*, taken from Mr. Blaauw's living bird, and by 17 figures of heads of the natural size (all drawn by Keulemans) of the following:—

C. casuarius, C. casuarius beccarii, C. casuarius salvadorii, C. casuarius australis, C. casuarius violicollis, C. casuarius intensus, C. bicarunculatus, C. uniappendiculatus, C. uniappendiculatus occipitalis, C. uniappendiculatus aurantiacus, C. philipi, C. papuanus, C. papuanus edwardsi, C. picticollis, C. picticollis hecki, C. loriæ, and *C. bennetti*. Two coloured maps (pls. xl. & xli.) show the geographical distribution of the Cassowaries so far as it is at present known to us.

Mr. Pycraft's dissertation, which forms the second portion of this important memoir, goes farther into the depths of the pterylosis, osteology, and anatomy of the Cassowaries and their allies than we are quite able to penetrate. But the work is, no doubt, of a high character; and an authority, on whose judgment we can place the utmost reliance, writes of it as follows:—

Mr. Pycraft's long and valuable dissertation is devoted to the consideration of such points of anatomy as have hitherto remained unrecorded, not merely in the Cassowaries, but in the great Sub-class of the Ratitæ; and we may say, at once, that in its ultimate outcome this anatomical portion is mainly systematic. It deals, as based upon the study of Cassowaries, with the pterylography, myology, nervous and sensory organs; as also with the osteology, visceral system, and the development, so far as that concerns the pore-canals of the egg-shell, the presence of the opercular fold (first described in *Apteryx* by Parker), and the pterylosis.

Under each of these heads a considerable amount of detail is systematically arranged, and at the end of the memoir the osteological characters of all the recognised genera are set down in a "key" form, in a manner which cannot fail to be of the greatest service to future workers. It is concerning the sections on the pterylography, the palate, and the muscles of the fore limb, that the original observation and generalization are most noteworthy. To refer only to the chief points, the fact that in *Apteryx* the first definite feathers do not thrust out the prepennæ, and that in *Casuarius* the remiges of the adult represent the calamus only, modified by a process of solidification during prolonged growth, are alone sufficiently important.

Concerning the muscles, while much detail is given which will be of use for reference, the greatest interest attaches to the discovery that in *Rhea* the *flexor carpi ulnaris* consists of two portions, of which the post-axial or posterior is bounded by a rudimentary *vinculum elasticum*, and that on comparison with other birds the varying proportions and inter-relationships of the two latter are seen to be such as would seem to justify the conclusion that in *Rhea* we have represented the proto-carinate wing-type of to-day.

It is, however, in the sequence, and particularly in its vomero-pterygoid portion, that the author is at his best. His work upon this is nothing short of revolutionary, and is in reality the outcome of investigations originating in his recent rediscovery of the segmented nature of the pterygoid, first observed by Brandt, which led him to the application of the term "*hemipterygoid*" to the anterior segment of that bone. As the result mainly of this line of enquiry, the author is led to associate the Tinamous (Crypturi) definitely with the Ratitæ, as was first proposed by Garrod and has since been all but done by others, and to reject, for cogent reasons, the Sub-class names Ratitæ and Carinatæ. Dealing with the palate, he distinguishes between the *Palæognathæ* (Ratitæ + Crypturi), in which the palatines are connected with the pterygoids by either synchondrosis or suture, and the rest of the birds or *Neognathæ*, in which the palatines and pterygoids are in articulation.

Having had access to the rich collections of the British Museum, the Zoological Society's Prosectorium, and other leading institutions in London, the author is enabled to show that in the passage from the palæognathous to the neognathous condition, the segmentation of the pterygoids and loss of independence by their anterior segment, by co-ossification with the palatines as these approximate medially and come to underlie them, is still actually undergone, and that the resulting freedom of the pterygoid (in reality of its posterior moiety only), characteristic of the *Neognathæ* alone, is consequently a secondary feature.

Passing, on this basis, to a reconsideration of accepted views of the inter-relationships of the seven orders of *Palæognathæ*, the author comes to regard the Dromæidæ as the most primitive birds now living, and to look upon the Rheas as most nearly allied to the Dinornithidæ and Tinamous. The Dromæidæ for him embrace the Emeus and Cassowaries; and concerning the Ostriches, he is led to regard the absence of palatine processes to the premaxillæ and the greatly reduced condition of the vomer as indicative of specialization. While he would thus deny their primitive rank among the *Palæognathæ*, he points to details in *Struthio meridionalis*, which he justly revives, of conditions which are intermediate between the higher Struthiones and the lower palæognathous type, and similarly points to details in cranial anatomy in which the Crypturi may well be annectent between the latter and the *Neognathæ*.

There is one point on which we would be critical, viz., the assumed intimacy of relationship between the Dinornithidæ and Æpyornithidæ. The researches of Bürckhardt into the architecture of their skeletons would seem to suggest for the latter a much more distinct origin than would our author, and that the points of resemblance between them may perhaps be due to convergence. We await, however, a full knowledge of their palatal anatomy.

As a new discovery there is announced in the skull of the nestling *Casuarius* a separate ossification for the central portion of the "casque," the homology of which has yet to be determined.

For the heart, there is recorded the fact that the moderator band would appear to be very inconstant, since it was found but once in the examination of five specimens; and the author corrects an obvious error of Forbes concerning the relationships of the *bursa Fabricii*.

This part of the memoir, illustrated by four admirable plates and nine text-figures by Grönwald, is no less thorough, as a whole, than in its classificatory portion it is novel.

The monograph in its entirety is one than which none could have been better conceived or desired to fill the place it occupies; it is in all respects masterly in its details, revolutionary in its salient points of originality, and will remain a standard work in the ornithological literature of the future.—G. B. H.

81. *Salvadori on Birds from Matto Grosso and Paraguay.*

[Viaggio del Dr. A. Borelli nel Matto Grosso e nel Paraguay. V. Uccelli. T. Salvadori. Boll. Mus. Zool. e Anat. Comp. R. Univ. Torino, xv. no. 378, 1900.]

The birds of the great Brazilian Province of Matto Grosso are pretty well known to us from the researches of Natterer and the large collections of H. H. Smith (*cf.* Ibis, 1892, p. 165, et 1894, p. 122). Nevertheless Dr. Borelli has managed to add to the Avifauna a fine new Parrot (*Pyrrhura hypoxantha*), already figured in this Journal (Ibis, 1900, pl. xiv. p. 671). The 250 specimens collected by Dr. Borelli at or near Corumbá on the Bolivian frontier are referred by Count Salvadori to 116 species, of which (including the new Parrot) 18 are new to the Fauna of Matto Grosso. During a short stay at Tebicuari, on the Paraguayan railway near Villa Rica, Dr. Borelli also collected 22 birds which are referable to 16 species. Four of these are new to Paraguay.

82. *Seebohm's 'Monograph of the Thrushes.'*

[A Monograph of the Turdidæ, or Family of Thrushes. By the late Henry Seebohm. Edited and completed (after the Author's death) by R. Bowdler Sharpe, LL.D., F.L.S., &c. Part X. Imperial 4to. London: Henry Sotheran & Co., 1900. Price 30s.]

The tenth part of Seebohm's 'Monograph of the Thrushes' (edited by Dr. R. B. Sharpe) is now before us. It continues the series of Blackbirds (*Merulæ*) of the author's arrangement, although we do not ourselves consider this section fairly separable as a genus from typical *Turdus*.

The following species, amongst which are several of special interest (e. g. *M. kessleri* of Kansu and *M. seebohmi* of Kinabalu) are beautifully figured:—

Merula thomassoni.
—— bicolor.
—— olivatra.
—— roraimæ.
—— euryzona.
—— castanea.

Merula kessleri.
—— gouldi.
—— seebohmi.
—— albiceps.
—— fumida.
—— whiteheadi.

83. *Shufeldt on the Crania of the Owls.*

[Professor Collett on the Morphology of the Cranium and the Auricular Openings in the North-European Species of the Family Strigidæ. By R. W. Shufeldt, M.D. Reprinted from Journ. of Morphol. xvii. p. 119, 1900.]

Dr. Shufeldt has done good service to English-speaking ornithologists in translating, from the Norwegian, Professor Collett's paper on the Owls, to which he has added notes on American species of *Syrnium*, *Asio*, and *Surnia*, on *Micropallas* [*Micrathene*], and on *Speotyto*, contained in his own cabinets. He concludes with a review of the opinions of recent authors on the position of the *Striges*, though he does not seem to have seen Mr. Pycraft's latest work on the group. The figures have been to some extent re-drawn and re-arranged.

84. *Sharpe on a new Bird from Mount Roraima.*

[Report on a Collection made by Messrs. F. V. McConnell and J. J. Quelch at Mount Roraima in British Guiana. (Communicated by Professor E. Ray Lankester, D.C.L., F.R.S., Director of the Natural History Museum.) Trans. Linn. Soc. (Zool.) viii. pp. 51–76, 1900.]

Only one bird, *Zonotrichia macconelli*, sp. nov., is mentioned in this memoir; it is figured along with its near ally *Z. pileata*. It would have been interesting to know what other species were met with by Messrs. McConnell & Quelch upon this remarkable mountain.

XXVI.—*Obituary.*

Mr. C. W. Wyatt, Dr. G. Hartlaub, The Baron M.-E. de Selys-Longchamps, and Mr. P. Crowley.

Claude Wilmott Wyatt, M.B.O.U., who died on May 1st, 1900, at his residence, Adderbury, Oxon, was the only son of the Rev. Thomas Wyatt, Vicar of Wroxton and Balscott, in the same county. He was born at Worthing, Sussex, on March 2, 1842, and was educated at Eton and Brasenose College, Oxford. While at Eton he met with an accident, and his injuries were so severe that he was on his back for several months, and remained an invalid for three years afterwards. This event had a great effect on his life, for on going to the University he found it impossible to do the necessary reading, and was reluctantly compelled to give up taking a degree. Being unable to do much head-work, he determined to devote himself to the "hobby" of his boyhood, namely, birds. First of all he visited Palestine and Egypt with the Rev. H. T. Gepp as his companion. In 1869 Wyatt joined the Sinai Survey Expedition as Ornithologist, at his own expense, and on his return wrote a good article for this Journal on the birds of the Sinaitic peninsula (see 'Ibis,' 1870, p. 1). In the same connexion, Wyatt also prepared the "Birds" of the Ordnance Survey of Sinai (1873). This expedition further encouraged Wyatt's taste for travel, and for the next ten years he was generally abroad, visiting Africa, North and South America, India, and other parts of Asia, always on the look-out for birds. One of the most useful excursions he made during this period was his journey to the U.S. of Colombia in 1870, when he penetrated far into the Eastern Cordillera of the State of Santander, and obtained a good series of specimens, of which an account was published in 'The Ibis' for 1871. In 1882 Wyatt finally settled down at Adderbury, and thenceforth devoted all his time to painting and drawing the birds he loved so well.

Wyatt was a very shy, reserved, and silent man. Few of his casual friends would have known from him of the wild places he had been in, or even that he had been out of England at all, but once on the subject of birds he was always ready to talk. During the last twelve years of his life he again felt the effects of his accident, and was more or less of an invalid, but up to the very last he always spent his mornings in drawing and painting.

His house at Adderbury was filled with cases of beautiful birds all shot and set up by himself. He also left a large and valuable collection of their skins, which his sister, Mrs. Bradford, has presented to the Oxford University Museum.

Wyatt's best known ornithological works are the 'Monograph of the Swallows,' a fully illustrated quarto, in two volumes, which was prepared by him in association with Dr. R. Bowdler Sharpe, and his 'British Birds,' also in two volumes. In both of these books the drawings, which were made entirely by his own hands, show artistic skill of a very high order.*

In Dr. GUSTAV HARTLAUB the science of Ornithology has lost one of its oldest and most active votaries, who had been engaged in zoological work, mainly relating to Birds, for nearly sixty years.

Hartlaub was born at Bremen on the 8th of November, 1814, being the son of Senator Hartlaub, a well-known merchant of what was then the 'Freie Hanse Stadt.' He was educated first at the schools of his native city and subsequently at the Universities of Bonn, Berlin, and Göttingen, where he studied Medicine and Natural History; he took the degree of M.D. at the last-named University. In Berlin he was associated with Count Keyserling, the elder Blasius, and Lichtenstein, and during a subsequent tour to Austria, France, and England, made friends with many other Naturalists of that period. Returning home, he settled in Bremen as a practising Physician, and passed the whole of his life in that city, only quitting it occasionally for a short summer vacation, which was usually passed in the Alps, or in some other quiet retreat in Germany or Italy.

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* See Ibis, 1894, p. 447, and 1900, p. 561.

Hartlaub talked and wrote English perfectly, and had many devoted friends in this country. When resident at Oxford (1846–50), the author of this notice found his master and teacher in Ornithology, the late H. E. Strickland, in close correspondence with Hartlaub. One of the first excursions made by the writer on the Continent at that period included a visit to Bremen, in order to make the personal acquaintance of this active and intelligent correspondent, as he had quickly become.

Hartlaub had an excellent library, but kept no private collection. All his specimens were placed in the Museum of his native city, where he acted as an honorary supervisor of the Zoological collection throughout his life. Our friend and fellow-worker, Dr. Otto Finsch, was appointed Curator of the Bremen Museum in 1864, and was for many years closely associated with Hartlaub in his work.

As early as 1844 Hartlaub published a catalogue of the Natural-History Collections in the Bremen Museum, and in 1846 first undertook the Report on the progress of Ornithology for Wiegmann's 'Archiv,' which he carried on for about 25 years. No one was better acquainted with the whole range of ornithological literature during that period, or could have performed this difficult task more efficiently. In 1847 a very useful piece of work was accomplished by Hartlaub, for which students of American Ornithology will ever be grateful to him. This was an index to Azara's 'Apuntamientos' on the birds of Paraguay, which was prepared with great care and sagacity. But it was more specially to the Avifauna of the Ethiopian region that Hartlaub turned his attention. His 'System der Ornithologie West-Africa's,' although issued so long ago as 1857, still remains the standard work of reference on this subject, and his two volumes on the Birds of Madagascar (1861 and 1877) were, until recently, the leading authorities on the strange Avifauna of that country.

In 1870 Hartlaub, in conjunction with Dr. Finsch, published an excellent volume on East-African Birds, based primarily on the collection made by the unfortunate traveller Baron v. der Decken during his expedition up the Juba River.

Besides these separate works, Hartlaub published, from 1852 onwards, a multitude of essays on ornithological subjects in various journals in Germany, especially in the 'Abhandlungen der naturwissenschaftlichen Vereins zu Bremen' and in the 'Journal für Ornithologie.'

Hartlaub, who had the reputation among his countrymen of being somewhat of an "Anglo-maniac," also made frequent communications to the 'Proceedings of the Zoological Society' and 'The Ibis.' Of the Zoological Society he was, at the time of his death, the Senior Foreign Member, having been elected to that honour in 1855. Of the British Ornithologists' Union he was one of the Honorary Members originally selected in 1860, while he was a contributor to the very first volume of this Journal. His name is commemorated in Ornithology by the peculiar genus of Starlings (*Hartlaubius*) called after him by Bonaparte in 1853, and by many species (*Onychognathus hartlaubi*, *Lophoceros hartlaubi*, *Turacus hartlaubi*, *Francolinus hartlaubi*, &c.), the names of which will carry down to posterity the fame of the celebrated Ornithologist of Bremen.

Hartlaub died at his residence in Bremen on the 20th of November last, in the 86th year of his age, having lived to celebrate his Golden Wedding and the Jubilæum of his

Doctorate, and leaving behind him a goodly array of children, grandchildren, and great-grandchildren to lament his loss. One of his sons, Dr. Clemens Hartlaub, C.M.Z.S., has followed his father's lead, and is well known as an active and rising zoologist, now second in command at the Biological Station of Heligoland.

Baron DE SELYS-LONGCHAMPS.—The news of the death of an eminent naturalist must always cause a feeling of melancholy among those who are left behind him, but he whose end it is now our duty to record had especial claims upon our consideration. A distinguished politician, a writer on an unusually wide range of subjects, and a fine specimen of the courteous nobleman, whose high character, sincerity, and unfailing tact were a byword among his fellow-citizens, we may well join with his countrymen in deploring his decease, while offering them our respectful sympathy in the loss which they have sustained.

M. le Baron Michel-Edmond de Selys-Longchamps—one of our Foreign Members since 1872,—though born at Paris in 1813, was a scion of an ancient and noble Maestricht family, which had of old furnished mayors, canons, and ambassadors to the Principality of Liège. His father held office under the French Republic, and was a member of the Belgian National Congress, while the son was successively communal councillor of Waremme (where he resided until fifteen years ago), provincial councillor, deputy, senator, vice-president of the Senate, and finally president of the same body.

A "governmental progressist" in politics, he was a most active legislator and a most eager reformer, while he was the last surviving member of the Liberal Congress of 1846.

Hardly more than three years ago was celebrated the jubilee of his election to the Royal Belgian Academy, when all the savants who were present vied with one another in their congratulations to the talented naturalist of half a century.

It would be impossible in our limited space to give a full list of the numerous works of which the late Baron was the author; it must suffice to say that, commencing with a catalogue of local birds and insects in 1831, he continued to publish reviews, notices, and monographs, singly or in collaboration with others, on Vertebrates of every description, and on certain classes of insects. In particular, we may mention his (Vertebrate) Fauna of Belgium, and an important work on the *Libellulæ* of the whole world (thought by those of his fellows well qualified to judge the most important treatise ever issued on the group), together with articles on the cross-breeding of Ducks, on Birds of Passage, on stragglers from America, and on the Passerine Order generally. Certain of his papers were published in our 'Annals and Magazine of Natural History,' 'Transactions of the Entomological Society,' and 'Entomologist's Monthly Magazine.' Lepidoptera engaged his attention to a considerable extent, and his insect-collections are said to have been particularly fine.

The Baron died at Liège on the 11th of December of last year at the ripe age of 86.

The sudden death of Mr. **Philip Crowley** causes yet another gap in the ranks of the British Ornithologists' Union. Born at Alton, in Hampshire, in 1837, and privately educated, he afterwards became a partner in the well-known brewery at his native place. Later in life Mr. Crowley took up his residence at Waddon House, near Croydon, where he died on December 20th of last year. Not only was he Treasurer of the Royal Horticultural Society and Master of the Gardeners' Company—honours bestowed upon him in consequence of his devotion to pursuits specially connected with those bodies—but he was also a Fellow of the Linnean, Zoological, and Entomological Societies, besides being more closely connected with us by his membership of our Union and its offshoot the British Ornithologists' Club, of which he was a Vice-Chairman. Mr. Crowley published very few zoological papers, but devoted himself to the acquisition of scarce specimens of butterflies and birds'-eggs with great ability and success. Of the latter his collection was well known, after the addition to it of those of Canon Tristram and of his brother, to be one of the richest in certain groups in Europe. By his will Mr. Crowley left to the Trustees of the British Museum power to select all such specimens from his cabinets of birds'-eggs as were required to make their series more complete, and we are informed that the National Collection will greatly benefit by this generous bequest.

It is an interesting fact that Mr. Crowley's mother was the daughter of Dr. Curtis, of Alton, who attended Gilbert White during his last illness.

XXVII.—*Letters, Extracts, Notices, &c.*

We have received the following letters, addressed to 'The Editors':—

Sirs,—A large number of Nutcrackers (*Nucifraga caryocatactes*) have visited this country during the last four months of this year. They probably arrived at the end of September, as the first specimens were obtained quite early in October.

They spread all over the country, so that examples were observed in all the eleven provinces of Holland. The birds, as would be expected, all belong to the slender-billed form; at least all those that I could examine or get examined exhibit the characteristic width of the white tips of the outer tail-feathers, as is usual in the Siberian form, the extent of the white in all cases exceeding 2 cm.

These birds seemed to feed largely in this country on the seeds of different species of pine-trees. One specimen, which I observed in this neighbourhood for several weeks, was constantly seen gathering them from the cones of *Pinus strobus* and *Picea excelsa*.

The bird suspends itself with its feet to the extremities of the branches which bear the cones, takes one off with its bill and flies away with it, generally to the ground in oak brushwood, where it proceeds to eat the seeds. Those of the

Weymouth pine seem to be its special favourites, and it has been observed to roost in the oak brushwood near these pines at a height of only 10 or 12 feet from the ground, notwithstanding that tall trees abound all round.

Although one particular bird still stays in this neighbourhood, I understand that at the present moment the greater number of these migrants have left this country—greatly thinned in numbers, I am afraid!

Yours &c.,
F. E. Blaauw.

Gooilust, December 1st, 1900.

[The irruption of *Nucifraga caryocatactes* in the autumn of last year has been likewise recorded in many parts of Northern Germany. See "Wanderzug des schlankschnäbeligen Tannenhähers," by Prof. Dr. R. Blasius, in 'Zeitschr. für Orn. u. prackt. Geflügelzucht,' January 1891.—Edd.]

Sirs,—I see that in the notice of Dr. Bowdler Sharpe's article on Birds in the recently published 'Monograph of Christmas Island,' you remark that "It is a pity that the distribution of the occasional visitors is not more fully stated in the monograph, in order to give us some better idea of the origin of the bird-life of Christmas Island." I should like to point out that the general facts of the distribution of the Christmas Island birds are stated on page 299 of the Monograph, and that, in most cases, the range is given in the list of species on page 305.

Yours &c.,
Chas. W. Andrews.

British Museum (Natural History),
Cromwell Road, S.W.,
December 12th, 1900.

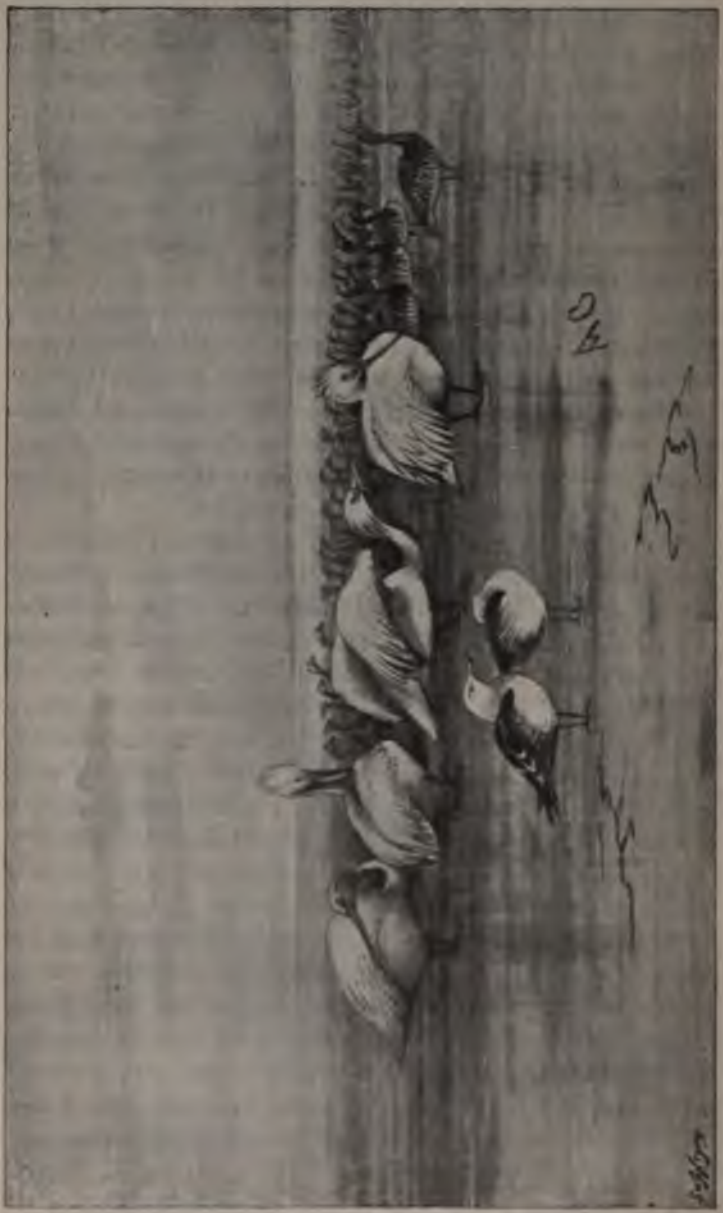
[This is quite true—we had unfortunately omitted to notice the paragraph about the distribution of the Bird-life given in the chapter on "The Geographical Relations of the Fauna and Flora of Christmas Island" (p. 299) of Mr. Andrews' Report. But it would have been better if attention had been directed to these remarks in the chapter on the Birds.—Edd.]

Sirs,—In July 1894 my late brother, Alfred Crawhall Chapman, gave an account in 'The Ibis' (p. 339) of a short ornithological visit which we had made to West Jutland in the preceding spring, and, among other things, recorded our having met with a small band of Pelicans in that country. Shortly afterwards ('Ibis,' 1895, p. 294) this statement was questioned—in language certainly not very friendly or fraternal—by a Danish naturalist, Herr Herluf Winge, of Copenhagen. Six springs have since elapsed, yet Herr Winge, though deprecating intrusions by foreign ornithologists, has not afforded us any further information as to the Pelicans that visit the Jutland coast. I have looked in vain for any evidence that he has even tried to solve this interesting question; and have been driven to the conclusion that, if we "Uitlanders" do not help ourselves, we may expect but little from scientific sources in Denmark—unless, indeed, it be sarcasms, "childlike and bland."

The object of this letter is to suggest that the Jutland Pelicans would form a thoroughly interesting objective to any British ornithologist who would undertake a journey thither during the coming spring. The time required is not more than 30 or 36 hours from London, and I have given full details ('Ibis,' 1894, p. 339) as to the exact locality where we found the Pelicans on May 8, 1893. As stated at the time, the local fishermen knew the Pelicans perfectly well, called them by the Danish equivalent of our own name, and told us that, although the birds appeared there almost every spring, they knew nothing themselves of their actually nesting there. Whether they do so or not I can, of course, express no opinion; but it seems regrettable that so interesting a problem in ornithology should be allowed to remain in doubt—and that almost within sight of our own shores. An easy journey of a week or ten days might suffice to settle the question, and during that period, I may add, a British ornithologist would also enjoy many truly delightful scenes of bird-life that can no longer be met with in our own islands.

I am sending a copy (see p. 356) of a rough sketch of the

Fig. 30.



Pelicans in Jutland.

Pelicans as seen, surrounded by Gulls and Grey Geese, on the Jutland coast, which I had prepared for my book 'Wild Norway.'

Yours &c.,

ABEL CHAPMAN.

South Bailey, Durham,
December 15th, 1900.

SIRS,—We beg leave to announce that for several years past we have been working upon the 'Birds of Yorkshire,' and that we hope to be able to publish the results of our investigations in book-form at an early date.

(Signed) OXLEY GRABHAM.
J. BACKHOUSE.

The Nurseries, York,
December 19th, 1900.

SIRS,—In reading over Messrs. H. C. Robinson's and W. S. Laverock's interesting account of some North Queensland birds ('Ibis,' 1900, p. 632), I notice that they are doubtful as to whether *Cracticus quoyi* is found in North-east Australia or not. But I think that it has been proved conclusively that this bird does exist there, as well as *C. rufescens*, for both Mr. C. Burnard and Mr. R. Hislop have found black young in the nest, both at Cooktown and Somerset. The natives of that district assured me that they had frequently found the young black. From what I have observed personally, I should say that *C. quoyi* is more abundant in the northern portion of the coast districts of Queensland, and that *C. rufescens* is the most plentiful in the more central districts—near Cairns, for instance. The young *C. rufescens* probably change their brown plumage for black when they are three years old, and are then very difficult to tell from *C. quoyi* without careful comparison.

Yours &c.,

D. LE SOUËF.

Melbourne, December 19th, 1900.

SIRS,—In a notice of the last part published of the 'Birds of Africa' (above, p. 146), you remark: "'Parisomidæ' is a new family formed to contain *Parisoma*, '*Alcippe*,' and their allies. But we cannot quite agree in uniting the African *Lioptili* (which are certainly closely allied to *Parisoma*) to the Asiatic form '*Alcippe*.'"

This remark is, in my opinion, rather hasty, unless some characters can be mentioned for separating *Lioptilus* from *Alcippe*. There are good series of both the type-species in the British Museum, and the results I arrived at, on comparing them, have been fully given (B. Afr. ii. pp. 206–208).

Not finding any character for distinguishing *Lioptilus* from *Alcippe*, I adopted Dr. R. B. Sharpe's "Group IX. LIOTRICHES. The Hill Tits" (Cat. B. M. vii. p. 596) as a family, and, as I include in it *Parisoma*, the first described genus to which any of its members belong, I call the family PARISOMIDÆ.

Yours &c.,
G. E. SHELLEY.

39 Egerton Gardens, S.W.

The Great Belted Kingfisher in Holland.—In the last number of 'Aquila' (1901, p. 194) is recorded the very interesting fact of the occurrence of a specimen of the Great Belted Kingfisher (*Ceryle alcyon*) near Arnheim, in Holland, on December 29th, 1899, which, to judge by appearances, could not have been an imported individual. We know that this bird has already secured a place in the 'British List' on the faith of two examples shot in Ireland in 1845 (see Saunders's Man. B. B. ed. 2, p. 280). So many Nearctic stragglers have been already met with on the western coasts of Europe that we see no difficulty in accepting the veracity of this fresh arrival—the more so as birds of this species are seldom, if ever, brought to Europe alive in captivity.

Birds of the outlying Islands of New Zealand.—The Earl of Ranfurly, Governor of New Zealand, and Honorary Member of the Zoological Society of London, has lately returned to Wellington from a month's trip round the outlying islands belonging to his jurisdiction. He was accompanied by Capt. Hutton, of the Christchurch Museum, Dr. Collins, and some of his staff, and visited the Snares, and the Campbell, Antipodes, Auckland, and Bounty groups. At the Auckland Islands he is stated to have obtained two specimens of the rare Duck *Mergus australis* (B. M. C. B. xxvii. p. 484), of which but few examples are known. Besides the single specimen in the British Museum (obtained by v. Hügel, *cf.* P. Z. S. 1881, p. 1), there are in this country, we believe, only one skin of this species at Cambridge, and a pair in the Tring Museum.

Capt. Boyd Alexander at Kumasi.—Capt. Boyd Alexander, whose departure for the seat of war in Ashanti we mentioned last year (see 'Ibis, 1900, p. 572), was at Kumasi at the date of his last letters. He says that he has had enough fighting for the present, and has reverted to the less glorious occupation of bird-collecting. Capt. Alexander has already sent some 400 skins to the care of Mr. Ogilvie Grant, and will, no doubt, bring with him an excellent set of field-notes on his return home. We are informed that there are no obvious novelties in the series, but that it includes examples of many scarce and little-known species.

Recent Change of Habits in Buphaga.—Mr. S. L. Hinde, of the British East African Protectorate, writes in 'Nature' (lxii. p. 3 6) as follows:—"The following case of wild birds changing their habits may be of interest. The common Rhinoceros-bird (*Buphaga erythrorhyncha*) here formerly fed on ticks and other parasites which infest game and domestic animals; occasionally, if an animal had a sore, the birds would probe the sore to such an extent that they sometimes killed the animal. Since the cattle-plague destroyed the immense herds in Ukambani, and nearly all the sheep and goats were eaten during the late famine, the Rhinoceros-birds, deprived of their habitual food, have become carnivorous, and now any domestic animal not constantly watched is killed by them. Perfectly healthy animals have their ears eaten down to the bone, while holes are torn in their backs and in the femoral regions. Native boys amuse themselves sometimes by shooting these birds on the cattle with arrows, the points of which are passed through a piece of wood or ivory for about half an inch, so that if the animal is struck instead of the bird no harm is done. But the few thus killed do not seem in any way to affect the numbers of these pests."

Decoys in Chitral, India.—Col. Durand, in 'The Making of a Frontier,' writes:—"We passed many Wild-Duck decoys, at constructing which the Chitralis seem very clever. They run off a portion of the stream on to a flat field, making a pool twenty yards or so square, at one corner of which the water runs in. Here they place a wicker cage with a wide mouth and tunnel gradually tapering up stream. They stick decoy Ducks about the open water, and when the Wild Ducks settle, drive them into the tunnel, catching sometimes two or three hundred at a time."

Falcon-catching in Chitral.—Col. Durand, in the same work, writes as follows:—"The method of catching is simple; a bird, according to the Chitralis, must be full-grown to be of any use, and caught when ranging for food. The trapper makes a little stone box in which he sits, a small hole being left in the roof, on which a chicken tied by the leg moves about, the string being in the man's hand below. After the Hawk or Falcon has seized his victim, the string is gently pulled, and, thinking that it is merely the chicken moving in his struggles to escape, the bird grips all the harder and is pulled to the hole, when the man below seizes it by the legs, and its liberty is over. The Chitralis are wonderfully clever at breaking their birds—I have seen one flown when captured not fully a week—and trust for taming them to keeping them awake. They keep a bird awake for three nights, constantly talking to it, and finally, when it is tamed by want of sleep and hunger, begin to feed it and to use the lure."

THE IBIS.

EIGHTH SERIES.

No. III. JULY 1901.

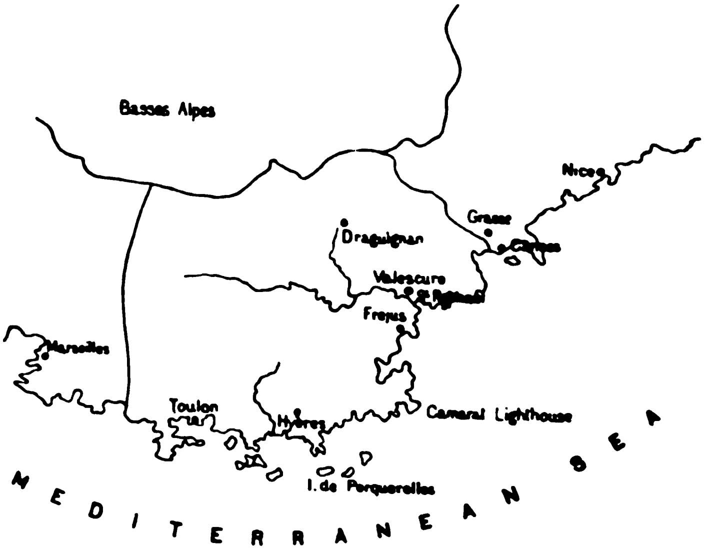
XXVIII.—*On the Ornithology of the Var and the adjacent Districts.* By J. H. Gurney, F.Z.S.

The Department of the Var, in Southern France, so much visited by our countrymen, is bounded on the north by the Basses Alpes, on the east by the Alpes Maritimes, and on the west by the ornithologically famous Bouches du Rhône. Of these four Departments (formerly known as Provence) the Var has the most southerly coast-line, which is 120 miles in length and for the most part rocky, with many headlands and several islands, as indicated on the accompanying map (p. 362). By way of its shores thousands of migratory birds probably make the land every spring, while other species, like *Grus communis*, pass over them on their way to England and Norway without halting, and a still greater number enter at the Delta of the Rhone. No doubt a vast majority of these travel by night, but Raptorial birds and some large forms besides are said to prefer the day.

April is the great month for the vernal migration, and it is just at that time, when Colonel Irby describes them in his 'Ornithology of the Straits of Gibraltar' as assembling in vast numbers on the coast of North Africa for the northern transit, that the small *Passeres* are to be seen arriving on the coast of France. Once there, they do not always remain, as might have been expected, and it frequently happened during my stay that an interesting bird was noticed and booked in my N. H. Journal, which the next day was gone from the place after a brief halt of three or four hours only, while after a short time others of the same kind appeared, to fill its room. The authors of 'Les Richesses Ornithologiques du Midi de la France' knew this habit, when, speaking of the spring-migration, they said: "L'après-midi a souvent vu disparaître tout ce que les premières heures de la matinée nous avaient amené."

In 1900 the passage may be said to have been entirely over by the 9th of May; not a bird was to be seen afterwards where there had been so many before, except a pair mated and settled for the summer at rare intervals. The *bonâ fide* travellers had passed on, and I remember that the same change from plenty to scarcity struck me forcibly in Algeria at just about the same date (Ibis, 1871, pp. 68, 289). Migration is very similar in the two countries, except that birds are more numerous in Algeria.

Fig. 31.



DEPARTMENT OF THE VAR.

As regards migratory water-birds, there is one important feature in which the shores of Provence—that is east of the mouth of the Rhone—are inferior to those of most countries. In the Mediterranean there is comparatively little tide, and consequently none of those tempting mud-flats exist for Waders to feed upon *en route* which are uncovered at low water in more northern estuaries. For migrants of this order, therefore, there are less inducements to stay.

The two writers who have paid most attention to migration in the Var and Alpes Maritimes are M. Pellicot, of Toulon, and M. Duval-Jouve, of Grasse. Both these gentlemen lay special stress *on rain, as being the great factor in hastening migration,* especially in autumn. "The first heavy rains" [in autumn], says Duval-Jouve, "seem to arouse the migratory impulse. . . . Sometimes when the early autumnal rains have fallen in sufficient quantity to thoroughly cool the earth and atmosphere, and when a light wind has blown from the north-west, the birds of passage have arrived in immense flocks, and the sportsmen have made great havoc among them; but this is not the case when the north-west winds have not been preceded by rain." Pellicot, speaking of the migration of the Spotted Crake (*Porzana maruetta*), uses almost the same words in reference to rain and wind as Duval-Jouve, who perhaps was quoting from him:—"Quand il a plu vers la Saint-Michel [Sept. 29], et qu'à la pluie succèdent les vents d'ouest ou de nord-ouest, il y a des journées de très-grands passages de marouettes." And in another place he says "ce sont les pluies qui déterminent d'abord le passage" of migratory birds in general, referring more particularly to the early autumn migration which commences in August; but he adds, "quand les vents qui favorisent le passage n'ont point été précédés par la pluie la migration s'opère encore sans doute, mais elle est plus restreinte que dans le premier cas." So much rain would not be altogether favourable in England, where the direction and velocity of the wind would be considered a more important factor. It must, however, be borne in mind that the Var, and still more the Alpes Maritimes, are high lands, and in some districts exceedingly mountainous, as shown in Howard Saunders's bathy-orographical map.

In most other respects the experience of the above-mentioned authors is merely what we would be naturally led to expect; but there is one singular observation of Pellicot's which is not very easy to understand, where he tells his readers that Starlings, Pigeons, and Thrushes differ from other birds in their autumn migration by following the coast instead of striking out to sea. Also Duval-Jouve says that when the autumnal rains are late, Pigeons, Starlings, and many other birds which habitually fly towards the west and against the wind, fly in an opposite direction. In these cases I should imagine strong winds to be the explanation of the unusual movement.

In the spring it appears that there is sometimes a great migratory journeying of birds from west to east along the coast of Provence. This was detected, on April 19, 1895, at Bordighera, probably with an easterly wind ('Zoologist,' xix. p. 309). In the autumn it is found that *Grus cinerea* and *Ciconia alba*, after coming south, habitually turn westwards, and fly towards Spain (*fide* L. Ternier, 1899). Again, many of the rarities which have been obtained in the South of France are distinctly of eastern origin, e. g. *Carpodacus erythrinus* and *Emberiza cæsia*, but it cannot be doubted that their presence is greatly due to wind, which blows them where they do not, of their own accord, attempt to go.

In 1900 the spring migrants, according to my note-book, arrived in the following order, and the dates differ little from what they would have been in England:—

Cuculus canorus (reported)	March	6
Machetes pugnax	,,	9
Chelidon urbica	,,	12
Saxicola œnanthe	,,	18
Crex porzana	,,	20
Totanus ochropus	,,	21
Iynx torquilla	,,	24
Upupa epops	,,	29
Hirundo rustica	,,	30
C. canorus (certain) ..	April	1
Scops giu	,,	5
Hypolais polyglotta ..	,,	9
Sterna cantiaca	April	11
Cotile riparia	,,	—
Daulias luscinia......	,,	13
Cypselus apus........	,,	15
Muscicapa atricapilla..	,,	28
Ruticilla phœnicurus ..	,,	—
Oriolus galbula	,,	30
Muscicapa grisola	,,	—
Caprimulgus europæus.	May	2
Turtur communis	,,	—
Lanius pomeranus ...	,,	8
— *collurio*	,,	12

It may be worth comparing a few of the above-mentioned dates of arrival with those noted in Algeria; Corsica (by Mr. Whitehead in 1883); and Norfolk (by the Rev. M. C. Bird).

	Algeria, 1870.	Corsica, 1883.	France, 1900.	England, 1900.
Chelidon urbica......	Feb. 17	March 20	March 12	April —
Hirundo rustica ...	„ 19	„ 16	„ 30	„ 17
Upupa epops........	March 13	„ 24	„ 29	....
Anthus trivialis ...	„ 18	April 21	May 15	....
Cotile riparia	„ 22	„ 11	April 11	„ 15
Ruticilla phœnicurus.	„ 27	March 24	„ 28	„ 21
Daulias luscinia	„ 31	April 19	„ 13	„ 21
Sylvia cinerea	April 1	„ 20	....	„ 21
Merops apiaster	„ 1	„ 19	May 10	....
Turtur communis....	„ 11	„ 16	„ 2	May 4
Muscicapa grisola ..	„ 24	„ 17	April 30	„ 21

On looking over these dates of arrival, and also those which I took down in Egypt in 1875, the principal thing which strikes me is the rapidity with which the birds, having once started, pursue their journey. The Turtle-Dove (*Turtur communis*), for instance, is in Northern Egypt on April 2nd, in Algeria on the 11th, in Corsica on the 16th, in the Var on May 2nd, in England on May 4th, and a little later in the Shetland Islands, which may be considered beyond its ordinary limit.

The average time which the spring passage of any particular species lasts is probably three weeks—that is to say, individuals keep on coming to the Var in succession for that period, provided the weather be normal; the first arrivals having passed on and reached their journey's end before the latest comers appear. A more favourable place for the study of migration than the North-west Mediterranean there could not be, and were there a Gätke on one of the rocky little islands off the coast of the South of France he would surely have much to tell us.

I crossed the Mediterranean twice in January and twice in the summer and saw nothing; but there is hardly any ornithologist who has been afloat at the periods of migration who has not something to tell us of land-birds passing his ship or alighting upon it, and in some cases remaining on board a whole day—see the diary of William Thompson on board H.M.S. 'Beacon' (Annals of N. H., 1842); and articles by the late Lieut. Sperling (Ibis, 1864, p. 268), Lord Lilford (three cruises), and others. The three naturalists here mentioned enumerate 55 species of birds, such as *Circus cineraceus, Falco vespertinus, Scops giu, Lanius pomeranus, Sylvia subalpina*, and *Plegadis falcinellus*, seen on the Mediterranean, many of which were observed several times, and were there space I would willingly quote some of their experiences.

Perhaps, before proceeding further, a short description of this part of Provence, as it appears in April and May, may not be out of place. The Var is a Department with no great lakes or rivers, but there are forests, of which the Forêt des Maures, formerly inhabited by *Aquila nævia*, is probably one of the most attractive. There are many valleys, and in them it must often be warm enough for migratory birds to halt, when the mountain-land is still too cold to provide them with insect-food. Even in the most sheltered places, however, the delicate *Hirundines* are completely nonplussed by any sudden drop in the thermometer, and after a single day's fasting have hardly strength enough to fly, especially in the case of *H. rustica*.

The slopes of the Esterel are clothed with pines of three kinds—*Pinus halepensis, P. maritima*, and *P. pinea* (the "pin parasol" or "umbrella pine")—and are the home of *Bubo ignavus* and a few Eagles, besides being the refuge of many foxes, marten-cats (five of which were brought into Grasse while we were there), and wild boars, for the last of which hunts are organized, while poison is laid about for the foxes. Further down, mingled with pines, are large woods of cork-trees, the skinned trunks of which present a very unsightly appearance; these are the resort of Jays and Woodpeckers. Interspersed with them are tracts of broken ground where the Red-legged Partridge breeds, and when these districts are clothed with Cistus of two kinds, *Erica* *arborea*, and *Genista*, a congenial thicket is made for the Dartford Warbler, which worms its black body about amongst them, while the Magpie's chatter is seldom absent.

Buzzards breed on the tops of these Esterel Mountains, which at their highest reach 2000 feet, and perhaps a few Neophron Vultures still nest there occasionally. In 1900 a forest fire had recently taken place, and such conflagrations must be rather disastrous to bird-life, as they are sometimes very extensive. The fir-clad slopes then become a mass of charred and blackened stems, which are most unsightly, but perhaps they never have very many birds on them. The slopes are succeeded by more level ground, with small vineyards; and here we begin to meet with the Serin Finch—so essentially characteristic of the country that it has earned the name of "Serin de Provence,"—the Black-headed Warbler, and the large Fruit Dormouse, while where umbrageous trees of large size grow the Oriole may perchance be detected, like an orange in the foliage, yet more skilful in concealing its bright plumage than might be expected. It was not my luck to fall in with the brilliant Bee-eater. By the sides of streams the oleander grows in some profusion; tortoises are to be seen, as are the Green Sandpiper and the Grey Wagtail. The Var is too far west for the orange-tree, which fruits freely in the Alpes Maritimes, and in many districts the place of the picturesque grey olives is taken by groves of cork-trees, a habitation to which the Scops Owl and the Pied Flycatcher are rather partial.

The villa gardens run for the most part along the coast, with plenty of cactuses and mimosa-trees for the Willow and Icterine Warblers, while the English Blackcap is at home in the shady plane-tree, which is such a feature in French suburbs. On the fallow land the Crested Lark and its congeners are to be sought, with Pipits of various sorts, and perchance the Meadow-Bunting may be viewed balancing on a spray, while the Chaffinch, Greenfinch, and Goldfinch are universally found, the latter brilliant as a butterfly under the southern sun, and not persecuted by bird-catchers as it would be in England. This description is taken about the first week of May, at which time a lepidopterist would probably find the warmest valleys teeming with butterflies. My son captured examples of 35 species.

And now to shortly enumerate what has been written on the ornithology of this part of France. It is to be hoped that the valuable list of local works by Mr. Howard Saunders and M. Clement on the ornithology of France (Zoologist, 1878, p. 95) will be republished for more general circulation with the necessary additions to bring it up to date. 'A List of the Migratory Birds of Provence,' by M. J. Duval-Jouve, professor of philosophy in the college of Grasse (Zoologist, 1845, p. 1113), comes first, and probably refers quite as much to the Var as to the three other Departments which formerly were included under the name of Provence. In 1853 a catalogue of birds by the late Dr. J. B. Jaubert appeared in the first part of the 'Prodrome d'Histoire naturelle du Département du Var,' for the loan of a copy of which I am indebted to Prof. Newton. Six years later the same author, in conjunction with Barthélemy-Lapommeraye, issued the 'Richesses Ornithologiques du Midi de la France,' in which Hyères, Draguignan, Fréjus, and other places in the Var are often mentioned, the book being a worthy successor of Polydore Roux's 'Ornithologie Provençale' (1825-9). A. Pellicot's 'Oiseaux Voyageurs sur les Côtes de la Provence' (1872) is a reprint of previously published articles, with additions, while Risso's 'Histoire Naturelle de Nice et des Alpes Maritimes' (1826) contains a list of 306 species. Mr. W. E. Clarke's valuable papers on the Camargue (Ibis, 1895 and 1898) have some bearing on the Var, and I am indebted to M. l'Abbé Joseran for a list of species, and to M. Cavalcadt and Mr. St. Quintin for other details. L.-A. Levat's 'Les Oiseaux de Provence' (1894) is also a useful alphabetical enumeration, but little has been published about the Basses Alpes and the Var of recent years, though the Baron de Palluel and Mr. Hanbury have printed a few notes about Nice, whence some years ago I received a small collection.

Jaubert gives about 310 species, to which *Regulus ignicapillus*, *R. cristatus*, *Œdemia nigra*, and *Pterocles alchata* have to be added, making 314; but his paper is little more than a list, with very brief remarks in most cases: I saw it abroad, but believe that Prof. Newton is the only possessor of a copy in this country. It must be admitted that for an area little bigger than the county of Norfolk 314 is a very good total (the Norfolk list stands at only 307); but it is probably greater now, for Jaubert wrote nearly fifty years ago, and since then some of the scarce Buntings, such as *Emberiza aureola* and *E. cæsia,* which have come to the Basses Alpes and the Bouches du Rhône, have most likely also visited the Var, while some of the rare Thrushes, of which there are French specimens in the Marseilles Museum, e. g. *Turdus varius, T. atrogularis,* and *T. obscurus,* may have occurred.

All these 314 species are without doubt migratory, in the sense that the bulk of the individuals have reached the South of France by crossing either the North Sea or the Mediterranean or a very great extent of land, except *Bubo ignavus, Cinclus aquaticus,* the Game-birds, and perhaps *Passer domesticus, Gecinus viridis,* and *Tichodroma muraria;* but I am not certain about the last three, as the evidence is conflicting.

It is a very common remark among the English in the Riviera that there are no birds, and a discussion on this subject was recently started in the 'Field' newspaper (April 7th, 1900 *et seqq.*) *. I think, however, after the preceding description, the reader will not quite acquiesce in that opinion. It seemed to me, being on the spot, that the truth really lay in this, that wild birds were not in evidence, because the number of individuals was much less than we are accustomed to see in the lanes of England, where all sorts find food in abundance; but in fact a good many species are there—at any rate during the periods of the vernal and autumnal migration—for those with good eyes and leisure to search, and especially is this the case in the Western Riviera and the districts nearer to the Rhone. England is a favoured country, and the truth is that there are very many parts of Europe which are birdless indeed compared with the land in which we live, and that forests and mountain-ranges never afford food for more than a limited number of species.

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* See also 'Ibis,' 1899, p. 442.

A good modern book on the ornithology of the South of France, with much more local information than is contained in the 'Richesses Ornithologiques,' would be most acceptable, while a handbook founded on it, in English, for the use of visitors, could not fail to be very useful, and would perhaps dispel the general idea that there are no birds in France. Since the great war with Germany, in 1870–1, Natural History has been somewhat at a standstill, the French people having too many other things to think about; and the literature of ornithology has consequently fallen behind that of England and Germany. Yet the flowers, the butterflies, and the shells of the South of France have received their due share of attention, though the birds have been neglected.

SONG-THRUSH. *Turdus musicus.*

The northward passage of *T. musicus* takes place in March, and in spite of long-continued persecution the bird is still sufficiently distributed to make its sudden disappearance pretty noticeable, while it will be remembered that it is in this month that the principal accession to the numbers is to be observed in England.

The "chasse au poste" or "poste à feu," which appears to be quite an institution, takes place in September, and an amazing account of it is given by M. Pellicot. In the first place it is necessary that the decoy birds be put out some time before daybreak, and that the gunner be at his post and concealed betimes, as *T. musicus* is on the wing very early, and will often flutter round the cages containing the decoys even before it is light. Then the gunner, from his place of concealment, picks off the unsuspecting migrants as they settle on the "poste," which is generally a bough, without leaves, elevated in an open place.

BLACKBIRD. *Turdus merula.*

The "Merle noir" is here appropriately called an "Avouca," in allusion to its resemblance to a black-gowned lawyer. A large Thrush, such as *T. viscivorus* (which we found breeding) or *T. pilaris*, is called a "Chastria"; the smaller kinds, that is to say, *T. musicus* and *T. iliacus*, are "Toudres," or, according to another writer, "Tourdres," but I had not an opportunity of hearing these names pronounced. Some Blackbirds in the Grasse market seemed very grey, and there are several curious variations in the Marseilles Museum, while P. Roux describes a pied race which seems to have been perpetuated for some years.

REDWING. *Turdus iliacus.*

The origin of many of our bird-names may be traced to the French language; for example, in Britain a Thrush is called by country people a "Mavish," but, as Mr. Howard Saunders remarks, "Mauvis" in French means a Redwing, and it is so understood in Provence, where the bird is regularly met with in winter. It is a name, too, which has a southern signification, for Mr. Wharton understands it to mean the bird which destroys the vine, *i. e.* eats the grapes.

RING-OUZEL. *Turdus torquatus.*

It is not known how far south *T. torquatus* goes in winter. It was met with, I believe, by Lord Lilford in the Var, and I shot it in Algeria in March, but its distribution is complicated by its affinity to *T. alpestris*, which species has been too recently separated to say whether it is found in the Var at all or only on migration. Pellicot, a very accurate observer, distinguishes between the "Merle à plastron" and the "Merle à plastron blanc" or "Grand Merle de Montagne."

BLUE THRUSH. *Monticola cyanus.* "Petrocincle bleu."

Mr. W. H. St. Quintin saw considerable numbers of this species at Grasse, and once observed *M. saxatilis* ('The Field,' May 12th, 1900), but the only Blue Thrush seen by me was in a Cannes shop. Jaubert and Barthélemy-Lapommeraye consider the "Merle azure" of Crespon to be a hybrid between the two species, an opinion shared by Suchetet. In the Abbé Joseran's list *M. saxatilis* is included, and not *M. cyanus*, but Duval-Jouve considered the latter to be stationary. Canon Tristram met with *M. cyanus* at Cassis.

COMMON WHEATEAR. *Saxicola œnanthe.*

A considerable immigration to Provence took place on April 24th, surely of a delayed party, or of those which had come from very far south. Pellicot says that one man trapped 624 "culs-blancs" in two days, which recalls the wholesale captures on the Sussex downs. The bulk arrive in England much sooner.

BLACK WHEATEAR. *Saxicola leucura.*

S. leucura loves rocky places, and is more likely to be met with at Nice than in the Var. I received two from Piedmont. *S. aurita* is stated by Jaubert to be not uncommon, and Mr. Clarke met with *S. stapazina* in the next Department.

STONECHAT. *Pratincola rubicola.*

One had perhaps wintered where it was seen on March 12th, as I know from a previous visit that Stonechats are sometimes not uncommon even in December, though the Whinchat (*P. rubetra*) is only a summer visitant. All the "Traquets," however (6 in number), according to Jaubert, nest in the Department in small numbers, but individuals of *P. rubicola* which breed there would not be the same as are seen in winter.

BLUETHROAT. *Cyanecula wolfi.*

A pair of Blue-throated Warblers seen at Bocca on the coast by Mr. St. Quintin ('The Field,' *l. c.*) were presumably *C. wolfi*, a well-marked form, of which the distribution is not very clear.

REDSTART. *Ruticilla phœnicurus.*

Apparently not a common bird. Personally I never encountered *R. tithys*, though Canon Tristram and others have met with it.

RUBY-THROATED WARBLER. *Calliope kamtschatkensis.*

This straggler from the East has been taken twice in the Department, once in August 1829 and once in April 1835, both specimens being adult males; and at the time of writing, the author of 'The Birds of Europe' was not cognisant of any other examples having occurred west of Russia. It is, however, said to have recently found its way to England.

BLACK-HEADED WARBLER. *Sylvia melanocephala.*

Called sedentary by Jaubert, but I did not meet with it until April 7th, although then a good many were paired; however, in 1877, a very mild winter, the birds were at Cannes in January. I did not notice that they stained their faces with the pollen of plants, as at Gibraltar, where it was rather difficult to find one not more or less yellow from contact with the pepper-tree, aloe, mimosa, &c., a fact which probably gave rise to the synonym *Sylvia ochrogenion* Lindermeyer. Here they do not seem to act thus, and the plants they are likely to meet with would be less tropical.

NIGHTINGALE. *Daulias luscinia.*

Daulias luscinia abounds at Valescure, and literally sings down every other bird. If the statement be true that it does not migrate in company, it must take some time for all to come over, but I do not believe this fiction, because within the space of a few days in April the previously silent woods ring with the song, indicating a rush. Of *Sylvia atricapilla* the migrating range is far less, and many individuals winter in the Riviera, which *D. luscinia* never does. In December 1876 there were a good many Lesser Whitethroats (*Sylvia curruca*) on the island of St. Marguerite; it certainly was very early, but it was an open winter, and I do not think I was mistaken as to the species, though there may have been a few *S. cinerea* or *S. conspicillata* as well.

DARTFORD WARBLER. *Melizophilus undatus.* "Fauvette pitchoux."

Among the tall Mediterranean heather, cistus, and genista, which form the knee-deep jungle of the Estrelles, the Dartford Warblers find a secure home. In April their black little bodies and long tails—spread perhaps for an instant—as they worm themselves in and out of all the tangle, are to be seen anywhere at Valescure. Always in pairs, the proud male will sometimes rise to the top of a bush or tall *Erica*, and with swelling throat serenade his sombre partner, "pit-it-chou, pit-it-chou, cha-cha," whence the French name; and to watch *M. undatus* thus displaying himself is at all times very delightful. These birds do not shun houses, and may be seen within a few yards of the Grand Hotel itself; but I was rather surprised to see a pair fly across the river Argente, never having associated *M. undatus* with reeds and rushes, and on the other hand again to meet with them on the lofty sides of Mount Vinaigre, though the latter is more like their Algerian habitation. A great many were clearly migrants, but my son found one nest, which however was empty. A good many small birds' eggs are possibly destroyed by the "Loir," a large fruit-eating dormouse which is common, but in this case the rain had probably made the bird desert the nest. This Warbler can dispose of a larger insect than many people would give it credit for, but in seeking nourishment it seems at times to denude the base of the lower mandible of feathers, as I have noticed in England, where perhaps food food is scarcer than in its native France.

I follow the B. O. U. List in designating this bird *Melizophilus undatus*, but the authors of 'Les Richesses Ornithologiques' call it *Pyrophthalma provincialis*. This generic term was established long ago for *Sylvia melanocephala* and *S. sarda*, but if *Melizophilus* be adhered to, it can be restricted to *M. undatus* and *Sylvia deserticola* Tristr., which is very like *M. undatus*. M. le Baron de Palluel thinks that the bird of Provence is a larger and brighter race than that of the north of France, and proposes for the latter the name *Melizophilus armoricus*.

FIRE-CREST. *Regulus ignicapillus*.

R. ignicapillus and *R. cristatus* are, no doubt accidentally, omitted from Jaubert's list. Neither are they in Duval-Jouve's list, but to make up for this *R. modestus* (*Phylloscopus superciliosus* ?) is introduced, probably by a mistake, yet the Yellow-browed Warbler might occur as an accidental straggler.

GRASSHOPPER WARBLER. *Locustella nævia*.

Once or twice we thought that we caught the trilling song of *L. nævia*, nor is this unlikely, as Duval-Jouve says that its arrival continues during the whole spring. The earliest of all the birds of passage to appear in numbers is *Phylloscopus trochilus*, accompanied possibly by *P. rufus* and *P. bonelli*. *Hypolais polyglotta* may be common, but was only twice identified. It is very difficult to make out the small Warblers without shooting them.

REED-WARBLER. *Acrocephalus streperus.*

Jaubert says of *A. streperus*: "De passage, quelques individus nichent dans nos marais"; but it is not confined to marshes, for even the little stream which passes through St. Raphael is not too public for this "Rousserolle," in spite of the houses on either side. It is curious, as remarked by Howard Saunders, that *Aëdon galactodes* should not have occurred in France, but the allied *A. familiaris*, which is less rufous, has been taken three times at Nice (Giglioli, Ibis, 1881, p. 199), where Lord Lilford also found *Acrocephalus aquaticus* very common, and the latter should probably be substituted in Jaubert's list for *A. melanopogon*. At Nice also MM. Gal, the local taxidermists, are stated to have obtained *Locustella fluviatilis*, *Curruca nisoria*, and *Daulias philomela* (see Ornis, 1899, p. 42).

ALPINE ACCENTOR. *Accentor collaris.* "Accenteur pegot."

We saw *A. modularis*, but it was only on a previous visit that a single specimen of *A. collaris* was met with. Duval-Jouve says that *A. collaris* never crosses the sea, as *A. modularis* does, and Pellicot says that he has seen the latter at sea. The Alpine Accentor is a mountain bird not likely to be met with in the cultivated valleys; the masonry of a fort would be more congenial to it, and in such a situation I have watched it elsewhere.

DIPPER. *Cinclus aquaticus.*

Only three or four Water-Ouzels (*Merle d'eau* or *Cincle plongeur*) were seen, rejoicing in the mountain-torrent of the Loup, a stream on which they probably remain all the year, only quitting it when frozen out. Prof. Giglioli says that they are sedentary in Italy.

Crested Titmouse. *Parus cristatus.* "Mésange huppée."

One in Valescure pinewoods (*Pinus halepensis* and *P. maritima*), April 21st, flitting quite alone from fir to fir, and at times dexterously clinging with its feet to the needles, sometimes back downwards. How seldom in England could one see a Titmouse without companions of any kind, as it is one of the most sociable of birds, and this is especially the case with *Parus cristatus* (*cf.* Zool. 1890, p. 212). Miss Broadwood also observed it at Valescure, but does not say whether it was a single specimen that she saw, or a party. Risso classes it as one of the six most productive species, in proportion to its numbers, in this part of France, but it does not lay so many eggs as *P. caudatus*.

Blue Tit. *Parus cæruleus.*

Not nearly so common as *P. major*, which is very generally distributed, and is also the most abundant in the Departments farther west. Our gardener described what he considered a very marvellous nest, which may have been a Penduline Tit's, a species which Duval-Jouve says is met with on the banks of the Var; it was woven of wool, with a hole at the bottom and one at the top. Other Tits included by Jaubert are *Parus ater*, *P. palustris*, *P. caudatus*, and *P. biarmicus*, which last Mr. W. E. Clarke also met with. *P. lugubris* was taken at Nice in February 1878 (Prof. Giglioli), thus coming very near the Var; and I have had *P. borealis*, the northern Marsh Titmouse, from Piedmont.

Wren. *Troglodytes parvulus.*

The Wren and the Robin are winter visitants, but the latter is much the commonest, though naturally less familiar and tame than in England. Prof. Newton mentions an old custom at La Ciotat of hunting the Wren with swords and pistols, and when killed the victim is slung to a pole borne as if it were a heavy load on the shoulders of two men who parade the village, and afterwards weigh the bird in a pair of scales. It would be interesting to know if the old custom still goes on at this small town by the sea, especially as it is so similar to the persecution of *T. parvulus* in Ireland. La Ciotat is not far from Valescure, but I had not heard of this quaint ceremony when I was in the Var.

WALL-CREEPER. *Tichodroma muraria.*

P. Roux, Orn. Prov. p. 366; Richesses Orn. p. 299.

How cleverly does the "Echelette" climb the rocks, probably making a lateral use of the hind toe. The impetus necessary for each jump is given, Mr. Moggridge thinks, by shortening in some way the tendon of that toe, thus naturally causing it to approach the three anterior, and these are the instruments of attachment (see Ibis, 1863, p. 161). The same jumping power would seem to be possessed by Woodpeckers *. The squat body of the *Tichodroma* reminds one of a Nuthatch.

It is, in fact, a Rock-Nuthatch with the bill of a Creeper, the more feeble flight not being sustained and having little power. One would not deem *Tichodroma* capable of any great migrations; yet its very feebleness would make it all the more at the mercy of the wind, and this accounts for its having been blown to England three times and to Alderney once (*Canon Tristram*). It is of periodic occurrence in Sarthe (*Gentil*), and has been often obtained in Indre (*Martin*); while Gadeau de Kerville gives occurrences in Normandy, three of them within seventy miles of Beachy Head. The limits of its regular migrations, however, show a very contracted range—lat. 31° to lat. 48° would more than comprise them. But one species of *Tichodroma* is recognised in 'The Catalogue of Birds' (viii. p. 333), and it certainly cannot be very common in Provence, as we only met with it in the Gorge du Loup; but Lord Lilford gives Ollioule, near Toulon, as another locality for it, and Canon Tristram met with it at Cassis.

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* My father remarked on a pair of *Picus major*, confined in a large wire cage with a horizontal top, which came under his observation, that they frequently traversed the top of the cage with their backs downwards, and in doing so they constantly hopped, back downwards, leaving go of the wires with both feet at once, and regaining their hold by some muscular action without the aid of their wings.

TREE-CREEPER. *Certhia familiaris.*

The authors of 'Les Richesses Ornithologiques' distinguish two Creepers, viz. *C. familiaris* and *C. costæ*, the latter a resident in the mountains and more highly coloured. I presume that it was the former which I met with, as being near the sea with other migrants I thought that it might have just come over. *C. costæ* is perhaps identical with the Creeper of Corsica (Ibis, 1885, p. 31); but, according to Mr. Hartert (Nov. Zool. iv. p. 139), this again is distinct from *C. brachydactyla*, the form found at Lyons and common all over Italy (Giglioli, Ibis, 1881, p. 194). Mr. Hartert's latest views are given in Nov. Zool. vii. p. 525.

GREY WAGTAIL. *Motacilla melanope.*

It is rather surprising to find the "Bergeronnette jaune" so common in Provence, and also on the west coast of France, and that not merely as a winter visitant, for a few stay to breed on the Mediterranean, and I think that a pair nested by the little St. Raphael stream. Authors have not realized how abundant *M. melanope* is in the South of France. Mr. Howard Saunders found it swarming in the Pyrenees (Ibis, 1897, p. 80).

MEADOW-PIPIT. *Anthus pratensis.*

A. pratensis is to be seen in small numbers—also *A. trivialis* as a spring migrant,—while an unidentified Pipit on the Napoleon plateau may have been *A. campestris.* The other Pipits mentioned by Jaubert are *A. richardi* (rare), *A. cervinus* (very rare), and *A. aquaticus* (rather rare), none of which came within the range of my binoculars, though I have seen *A. spipoletta* (=*aquaticus*) in Southern Piedmont.

GOLDEN ORIOLE. *Oriolus galbula.*

French *Loriot*, from Lat. *aureolus*=golden. Local name, also in allusion to the colour, *Dorin*. It is the wont of these gorgeous birds, which appear to be common in France up to Paris, and were already paired on April 30th, to frequent large leafy trees, where the yellow cocks look like oranges, but are less conspicuous than one might expect, and more quiescent than the less obtrusive hens. We have it on the best French authority that "leur chair est d'un goût recherché," which is no doubt the only interest the peasant farmer would take in them, except that their unfortunate partiality for figs is an additional reason in his eyes for destroying them. One which I skinned in Algeria contained a thick wad of caterpillar's hair, a proof that this individual at least had done good *.

LESSER GREY SHRIKE. *Lanius minor.*

Mr. Clarke found this bird excessively common during May and June on the Rhone, and it is also found in the Var, as is more rarely *L. meridionalis* (Jaubert); but I had not the good luck to meet with any Grey Shrikes, which was singular, as *L. excubitor* is not uncommon in some parts of France.

WOODCHAT. *Lanius pomeranus.* "Pie-grièche rousse."

L. pomeranus and *L. collurio* appear to be the last of the spring migrants, and very beautiful are the freshly-moulted males, so different to those of *Saxicola œnanthe* and *Muscicapa atricapilla*, which come earlier and are often still in the winter plumage. *L. pomeranus* sits like a sentinel on the cork-trees, and is less demonstrative than *L. excubitor*, whose tail does not know how to keep still! All the Shrikes, according to Jaubert and Regnier, are locally known as "Darnagas," a name which Roux says has been wrongly given to them by country people on account of their supposed stupidity. *L. pomeranus*, however, is rather a stupid bird.

PIED FLYCATCHER. *Muscicapa atricapilla.* "Gobe-mouche noir."

A late spring migrant, as in Algeria and in other parts of Europe, but probably always commoner in Provence than *M. grisola* (see Mr. Clarke's remarks, Ibis, 1898, p. 475), though the range of both is the same. *M. albicollis* is noted by Jaubert, but as very rare, and *M. parva* has been once killed in September, on the peninsula of Brusq (Ornis, 1899, p. 42).

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* In 'Ornis' for 1899, p. 130, will be found a detailed list of the Oriole's food in France in every month of the year, from which it appears that it does a certain amount of harm; and at p. 57 are added the dates of the arrival in spring, extending over thirty-eight consecutive years, giving an average of April 21st for the middle of France, and probably a few days earlier for the south.

Rock-Swallow. *Cotile rupestris.*

Hirundo rustica, *Cotile riparia*, and *Chelidon urbica* are all common, but not *C. rupestris*, which was first seen on March 22nd near the coast; it had probably just arrived from Algeria, and was evidently on the move, for in a quarter of an hour the birds had passed on. Next they were observed in considerable numbers playing over the foaming Loup, and again in May a pair or two occurred on Mont Vinaigre.

Red-rumped Swallow. *Hirundo rufula.*

Mr. St. Quintin was on one occasion so fortunate as to see at the Gorge du Loup about a dozen examples of *H. rufula*, a species easy to be recognised by its red back and collar, and figured in the 'Richesses Ornithologiques.'

It is also well figured by Sharpe and Wyatt, who give a map showing its distribution.

Serin Finch. *Serinus hortulanus.*

The "Gros-bec cini," or Serin, is common, and no sooner are the male and female paired than they become assiduous in their mutual attentions, following each other from tree to tree until the nest is made and the eggs are laid, when the cock perpetually serenades his partner, beginning at early daybreak in a low clear continuous strain. A pair had a nest in the next garden at the end of a pine-branch; it was lined with feathers, and was so small that its outside diameter was only seven inches. In this instance the exterior of the fabric was made of a little grey plant which the French gardener said was an "immortelle." Another nest was on the topmost leader of a slim Aleppo pine, and the tail of the hen could be seen from below projecting over the edge. This was on May 10th, and as she sat closely she was probably hatching, but the pine was so slender that I was afraid of climbing up it. A French writer, René Paquet, under the *nom de plume* of Quépat, has published a monograph of the Serin, and another of the Goldfinch, which contain a good deal of valuable information; the former is probably a bird which is increasing.

CHAFFINCH. *Fringilla cælebs.*

F. cælebs, Carduelis elegans, and *Ligurinus chloris* are all resident, and the first two very common, many of them being perhaps the same individuals which at another time of year enliven our own groves at home. Clarke only saw *F. cælebs* once.

LINNET. *Linota cannabina.*

L. cannabina was less abundant, and was not seen associating with *Serinus hortulanus* as in some countries.

SISKIN. *Carduelis spinus.*

C. spinus was only seen in cages; *Pyrrhula europæa* and *Coccothraustes vulgaris* I give on the authority of English friends who know them. Jaubert's "Bouvreuil incertain" was probably a young *Pyrrhula erythrina,* and his "Bouvreuil ponceau" perhaps an erythrism of *P. europæa.*

TREE-SPARROW. *Passer montanus.*

No doubt this species is highly migratory, but why Jaubert should think *P. domesticus* to be so is not clear; here, as everywhere else, it is essentially a parasite on man. I tried very hard to detect *P. italiæ,* the presence of which has been noted by Jaubert and l'Abbé Joseran, but doubted by Mr. Dresser. If a census of the birds of the Var could be taken, the Sparrow would probably come out at the head of the poll, as it unquestionably would do in England, being, moreover, the most destructive species in every grain-producing Department of France.

CROSSBILL. *Loxia curvirostra.*

Jaubert says the "Bec-touar" or "Pesso-pigno" (provincial names) is occasionally very abundant, as I learn was the case a few years ago at St. Tropez, when the visitors were very unwelcome, for they attacked the almond crop and did no little harm. Generally they are rare, but Lord Lilford met with a few near Toulon in 1873. Various years in which Crossbills were numerous in the South of France—

especially 1836–39 (inclusive)—are mentioned by authors, and everywhere they seem to bear the same gipsy character.

PINE-GROSBEAK. *Pyrrhula enucleator.*

P. enucleator is said to have appeared in numbers at Fréjus in the winter of 1836; but it has possibly been confounded with *Loxia curvirostra*, a mistake which has often been made in England. On the other hand, Mr. Howard Saunders reports a genuine *P. enucleator* in the Marseilles Museum, locally killed ('The Field,' June 26th 1880), and it is noted, though with a mark of doubt, in the 'Richesses Ornithologiques' and by Polydore Roux. It has also been authenticated as far south as the Italian Alps by Prof. Giglioli and Prof. Oddi, and there is no particular reason why it should not sometimes occur in France.

CORN-BUNTING. *Emberiza miliaria.* "Bruant proyer."

A single *E. miliaria*, a flock of five, and again three on May 10th were all that I observed, so I am rather surprised at Mr. Clarke's finding the bird abundant in the Bouches du Rhône. *E. citrinella* was still less common; and of the handsome Meadow-Bunting, *E. cia*, I saw only one fine cock on March 23rd, balancing himself on a bush with no companions. The other Buntings mentioned by Jaubert are *E. melanocephala* (very rare), *E. cirlus* (regular migrant), *E. hortulana* (regular migrant), *E. schœniclus* (autumn migrant), *E. nivalis*, &c. *E. nivalis* is not so rare in the south of Europe as has been assumed; when at Avignon on a previous visit I was told that one had been lately killed.

MARSH-BUNTING. *Emberiza intermedia.*

Jaubert states that *E. intermedia* is very common during the winter, and leaves in March, but that a few nest near Hyères; later authors, however, unite this race with *E. schœniclus*, while keeping *E. pyrrhuloides* distinct. The two latter are found in the Var, but *E. pyrrhuloides* is very rare; and the distinctness of all three of them forms the subject of an article by Dr. Jaubert in 'Revue Zool.' 1855, p. 225, while later authorities have discussed it on the strength of more material and probably with greater accuracy.

STARLING. *Sturnus vulgaris.* "Etourneau."

Said to be very abundant, but the only examples my son and I saw were seven or eight in a bird-cage shop, which, from having been a long time without turf to wear their beaks down, had them elongated in a very unnatural way.

BLACK STARLING. *Sturnus unicolor.*

Has occurred once at Draguignan in May ('Richesses Ornithologiques,' p. 108) and at Marseilles in January 1879, but there are still some persons who question its specific distinctness from *S. vulgaris.*

ROSE PASTOR. *Pastor roseus.*

Jaubert tells us that young birds are to be looked for in June and July, and that there was a great migration to the South of France of the adults in June 1837. I had a fair specimen from Nice some years ago.

MAGPIE. *Pica rustica.* "Pie ordinaire."

In some parts of the Riviera *P. rustica* is almost unknown, but assuredly there are no lack of these birds at Valescure. Crespon considers that they are not migratory, in which he does not agree with Duval-Jouve; but I found one lying dead on the shore, which was suggestive. They nest chiefly in *Pinus maritima* and *P. pinea,* laying six or seven eggs in May; yet on April 30th there was a "flyer" with a short tail, though it may have been an old bird moulting. For some unknown reason they arch their nests over, which seems an unnecessary protection; and, judging from several in my garden, I am quite of Vieillot's opinion that they make more nests than they mean to use, though the Owls are glad of them. The immunity from persecution of the "Agasso," as this long-lived thief is here called, and its consequent abundance in so many parts of France, is solely due to its being unfit to eat, which is what the local gunner thinks about.

This species is very destructive to the peasants' vines, as well as to melons, peas, and maize, also to young poultry, and there are stories of its audacity in taking young birds hung out in a cage. To this list of viands are to be added walnuts, almonds, and apples; but perhaps it makes some amends by eating the earthworms, which are here as large as little snakes. The Magpie is the characteristic bird of France, and the only one which the average Englishman remarks as he speeds through the country.

JAY. *Garrulus glandarius.*

The crafty "Geai"—named, as it seems, after its own *gay* colours—is just as sly in France as it is in England; but it is easy to trap them, I believe, and a Jay pegged down with its feet in the air will hold any other bird that comes within its reach, according to Pellicot. Risso notes that *G. glandarius* sometimes appears in considerable bands, and in another place he says: "*G. glandarius* and *Sturnus vulgaris* have been sometimes seen during whole days passing at intervals in flocks" (H. N. de Nice et des Alpes Marit.).

NUTCRACKER. *Nucifraga caryocatactes.*

Included in Jaubert's list, but no occurrences specified, a fact which in several other instances detracts much from the value of his catalogue. Specimens were probably obtained in 1844, when many visited the South of France. In the same year one was shot in Norfolk and one in Sussex, showing the wide extent of the movement.

CARRION-CROW. *Corvus corone.*

"La Corneille noire" is stated to be migratory, but, according to Polydore Roux, does not cross the sea, by the edge of which was the only place where we saw it.

HOODED CROW. *Corvus cornix.*

I have had *C. cornix* from Nice, but it is said to be much less common than *C. corone*, while *C. frugilegus* is only found inland. "Chavo" or "Graio" is a provincial name for all of them (Pellicot), but not for the Raven. I have seen *C. cornix* in Italy as late as June 23rd.

SKYLARK. *Alauda arvensis.*

Common up to the end of March; indeed there were quite 150 in Grasse market one day during that month. On May 10th, long after the bulk of them had departed north, one on the golf ground was sitting on a nest which I should have hardly recognised in England as a Lark's, it being constructed so as to completely arch over the sitting bird, and affording an admirable protection for her. She was unlike the Larks at Grasse, being lighter and of a mealy tint, and was probably of the subspecies *A. cantarella.*

CRESTED LARK. *Alauda cristata.*

The "Alouette cochevis" is called "sedentary," but evidently receives accessions; it cannot be very migratory in the north of France or it would not stop short within sight of the shores of England.

A ploughed field, especially if the harrow has not long since been over it, seems a very favourite resort; and there the cock and hen feed, and are very constant partners to one another, as may be noticed in the Pas de Calais. I never saw them come into villages, or perch on houses, or pant from the heat, or associate with Finches. Neither Mr. Wharton nor Mr. Whitehead include this species as a bird of Corsica, which seems very singular; but this is paralleled by its abundance on the south, and absence on the north, side of the Straits of Dover. Pellicot and De Palluel speak of a larger and darker race which the country people distinguish as the "Coquillade."

SHORT-TOED LARK. *Alauda brachydactyla.*

Two examples of *A. brachydactyla* were observed near Fréjus on April 18th and 24th, but I do not think that we saw *A. calandra* except in a cage. Two Larks which rose out of the cistus on May 10th were thought to be *A. arborea,* as certainly were two seen at a shop in Cannes on a former visit. A dark form of the Short-toed Lark has been recently distinguished in Provence by the Baron de Palluel.

ALPINE SWIFT. *Cypselus melba.* "Martinet à ventre blanc."

Two seen by Mr. St. Quintin, and another by Miss Broadwood at Bagnol—probably not uncommon. *C. apus* is very numerous, and, as at Algiers, delays its migration a while by the coast; both species are known by the appropriate name of "Coupo-ven" (Jaubert). A few individuals of *C. apus* may breed in St. Raphael Church.

Nightjar. *Caprimulgus europæus.* "Tête-chèvre" or "Crapaud volant."

Not common (Pellicot); one seen by Lord Amherst on May 2nd. *C. ruficollis* has occurred (Jaubert and Alfred Cavaleadt).

Wryneck. *Iynx torquilla.* "Torcol."

The noisy *que-que-que* was first heard under our windows on March 24th, and a few specimens occurred afterwards, but they soon passed on, and are seldom met with in summer (Jaubert).

Green Woodpecker. *Gecinus viridis.*

Often heard and seen on the wooded hills until about the 1st of May, when its cry quite ceases, only to be brought on again in the same month by a heavy rain. I do not know whether the inhabitants associate the cry of the "Pic vert" with a downpour, but it is stated by local authors to be very susceptible to frost, which, as in England, seals up its means of existence. The authors of 'Les Richesses Ornithologiques' speak of a form having the upper parts yellowish, and in England I have met with a similar variety*. *Picus major* was not seen alive. *P. martius* has been found at Lachen (Jaubert).

Kingfisher. *Alcedo ispida.*

On the Argente, and no doubt on other streams and rivers, every one knows the "Martin-pêcheur," but I have not found any book which explains why it should be dedicated to St. Martin more than to any other saint, or why *Circus cyaneus* should have the same honour.

Bee-eater. *Merops apiaster.* "Guêpier."

The Bee-eater is a late spring migrant, believed to nest in one locality; four were seen by an English visitor at Boulourie on May 11th, and two stuffed specimens are in a house at Valescure. Apart from the birds' beauty, their habit of calling as they fly would attract the attention of the most unobservant, and accordingly, though scarce, they are generally known.

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* This bird, which I examined in the flesh, had a beautiful bronze tinge on the upperside of the wings, quite resplendent when it was held sideways to the light.

Roller. *Coracias garrulus.*

Jaubert and M. Cavaleadt both mention *C. garrulus*, of which there is also a fair example in the Cannes Museum, and Mr. Clarke saw one in the Bouches du Rhône. It is perhaps not generally known that these birds include small frogs and locusts in their bill of fare, while on one occasion I met with four very large beetles in the stomach. They would probably be the last of the irregular spring migrants.

Hoopoe. *Upupa epops.*

True to its appropriate Gibraltar name of "March Cock," *La Huppe* was first seen by my son on the 29th of that month. Crespon, so familiar with all his native birds, thought it to be the cock only which gave utterance to the resonant *pou, pou, pou,*—sounds to be heard a very long way off in a still wood; but probably the female (as is the case with *Cuculus canorus*) has a cry of her own, less loud and noticeable. To some ears this "pou, pou" is a note even sweeter than the Cuckoo's, which indeed it may well be! *U. epops* has a very small tongue compared with most birds; this may have something to do with its cry, which, when heard for the first time, is certainly very singular; and it is said to have a dilatable œsophagus, which may further assist. It is very fond of worms. The Arabs call it *Hud Hud,* not a bad rendering of the call, but I never heard that the French ascribe to it the same medicinal virtues which Mahomedans are said to do.

Hoopoes are not common at Valescure, but a pair were beginning to nest in some farm premises, probably under the eaves, where they had bred once before. The result we left too early to know, which, for the sake of my nose, was not to be regretted. At the mouth of the Rhone Mr. Clarke found them surprisingly abundant, which makes it the more curious that they are not commoner in the Var, where the French proverb "sale comme une huppe," in allusion to the nest, can certainly not have originated.

Cuckoo. *Cuculus canorus.*

First heard as early as March 6th. Its parasitic habits are well known to the peasants, who accuse it, with justice, of eating eggs, for a well-known naturalist at Lyons shot a female which had swallowed an egg of *Emberiza miliaria*, and the fact has been proved beyond doubt in England. Crespon tells his readers that Cuckoos are so thin on their arrival in spring that "maigre comme un coucou" has passed into a proverb; it cannot be exhaustion from migration which reduces them, for the muscles of birds are supposed to be developed for migration; but no one has fathomed the mysteries of this anomalous bird. Young Cuckoos present a kind of dimorphism, for though generally of a dark slate-colour, they are sometimes rufous, and no doubt it is the latter which eventually become hepatic forms; these hepatic birds are not at all uncommon on the Continent, and I once obtained a Cuckoo half normal and half hepatic, which was a very singular bird (*cf.* Norwich Naturalists' Trans. vi. p. 383).

SCOPS EARED OWL. *Scops giu.*

Local name "Machorta." The noise which goes on in the cork-woods of Provence on a hot spring night (April 12–May 12) from the combined melody of Scops Owls, Nightingales, and Frogs would hardly be credited, and is equal to anything on the Norfolk Broads. The chief offenders are the Scops Owls, which keep perpetually reiterating "scho-u, scho-u," beginning this music at 7 P.M. and going on with it all night long, which is anything but conducive to slumber for persons of weak nerves. Sometimes the sound is uttered on the wing, sometimes when perched, but always with the same cadence without any variation, at intervals of thirty seconds, given with the regularity of a clock: really the monotony of a Cuckoo is nothing to it! Two or three times the "love-song," if such it be, surprised us by beginning at 4 o'clock in the afternoon, and once at half-past one the irrepressible Owl was already tuning up. To what purpose can all this noise be? for it must serve something in the economy of nature.

As there are not many holes at Valescure, the timber being for the most part small, these Owls generally lay their eggs, I am given to understand, in disused Magpies' nests, of which there are any amount. According to certain authors, they begin to lay in May, but everybody I asked said that we were too early for them, and that they laid in June. They are rather audacious birds. Two made their way into Mr. Sargeant's premises, another into the Villa Marguerite, and a fourth wished to come into my house by the window, a habit of temerity which has led to unjust accusations in some places where they have entered churches, it is whispered in search of holy oil! The flight of the Scops is as soft and noiseless as can be, and its chief food consists of insects, which it has to hand at all times for the taking. It will devour earwigs, mice, and caterpillars, but it is doubtful whether it eats birds. Spallanzani adds earthworms, of which *Athene noctua* is very fond. In May the Scops Owls roost in pairs, and a cork-tree within a few yards of the drawing-room at Villa Suveret was their chosen diurnal resort. Here little Scops was to be seen early in the morning, when his labours for the night were over, either quiescent like a stump or with erect horns and attenuated body, very much on the watch; but I was disappointed at never finding any remains of food under the perch, as I should like to have investigated a few pellets.

Crespon says that he shot fifteen Scops Owls in one day, probably for eating, which is a proof that they migrate in company, as *Asio accipitrinus, Nyctea scandiaca,* and *Asio otus* are known to do occasionally. The culinary merits of the Scops Owl must be great, for Pellicot says it is "sur quelques points, notamment à la presqu'île du Brusq, près Toulon, l'objet d'une chasse spéciale," and in Malta it is eaten. It is an Owl seldom to be bought of London animal-dealers, though there would not be much difficulty in getting a supply from the Var, one would think. My brother had one alive for some time.

Long-eared Owl. *Asio otus.*

Owing perhaps to the many Scops Owls the note of the "Moyen Duc" was not detected, but two were seen at Fréjus, one on the shore and one on the sandhills. ***Athene noctua*** is well known but less common, as is ***Strix aluco***. ***Nyctala tengmalmi*** has occurred at Nice (Ibis, 1881, p. 189), but not in the Var, where, however, ***Asio accipitrinus*** is stated by Risso to be found "in woods," which are not usually associated with this inhabitant of the open country. All the Owls are probably migratory except ***Bubo ignavus***.

EAGLE OWL. *Bubo ignavus.*

This formidable bird does not appear to be very uncommon, and breeds in the Esterel chain, I understand. Three specimens, if not more, have been taken near Valescure, probably in winter, and if so, were driven no doubt by lack of food from their mountain fastnesses, as is commonly the case on the Lake of Geneva; in this sense only is the Eagle Owl a migratory bird, and it is unlikely that it ever goes far, or crosses the Mediterranean. There are many stories of its daring: one flew into Mr. Sargeant's partly-covered poultry-yard at Valescure, attracted by his fowls, and being unable to find the right way out again, was captured alive the next morning. I believe it is at the Marseilles Zoological Gardens, where Mr. Sargeant sent it. It had killed a chicken, and on a previous visit had carried off two Guinea-fowls, the remains of which were found on the hill opposite, no doubt left there by the same nocturnal robber. Mr. H. Saunders says that it also preys by day, but this act of spoliation was committed at night. A second took up its abode in a valley near the Grand Hotel, where it was seen eating a Wood-Pigeon, while another killed two Ducks and a hare. When picked up, the latter was minus an eye, but was otherwise uninjured, and the owner of the ducks spoke with glee of the good roast it made. This Owl is said to take kids and young roe-deer when it gets the chance, and peasants have been known to support themselves by daily robbing the nest of supplies brought for the young "Grand-Ducs."

KESTREL. *Falco tinnunculus.*

A good many "Cresserelles" are scattered about, many being migrants arriving or departing, though some have eyries. Duval-Jouve noticed that the travels of most of the birds of prey coincided with those of the smaller birds, and particularly that *F. tinnunculus* liked to accompany Larks on migration *.

HOBBY. *Falco subbuteo.*

A small Hawk which dashed over our garden was, I guessed, *F. subbuteo*, which has been obtained at Cannes and is not rare. *F. cenchris* is included in Jaubert's list, along with *F. vespertinus* (also met with at Nice by Lord Lilford), and *F. peregrinus* was identified by Mr. St. Quintin at Trayas and also near Cannes.

BUZZARD. *Buteo vulgaris.*

One expects to see Buzzards in France, but my son and I only viewed a few. It used to be possible to see fifty in a day in Lorraine, and sometimes rich varieties; but that was thirty years ago, and they are now probably scarcer in all parts of France. This is one of the seven Raptorial species given as regular birds of passage by Duval-Jouve, the other six being *Pernis apivorus, Accipiter nisus, Falco peregrinus, F. subbuteo, F. tinnunculus*, and *F. æsalon*. The last, however, according to Jaubert, sometimes nests here, as it is said to do in the Pyrenees.

GOLDEN EAGLE. *Aquila chrysaëtos.*

A large Eagle which had come down from the mountains for food, and which a peasant at Valescure captured alive, may have been *A. chrysaëtos*. So may an Eagle which was shot at Levens about last March, which I heard of after our return, for no doubt the "Aigle fauve" still breeds in the high ranges of the Basses Alpes. That partially albinistic race *A. barthelemyi*, figured in 'Richesses Ornithologiques,' had an historic eyrie little more than ten miles from the frontier, whence my father procured two young birds, one of which never got the white scapular spots, and the other not until it was seven years old. One of these is preserved in the Norwich Museum.

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* Migratory Hawks have been seen at sea by many observers, the most remarkable instance being an old one, viz. that given by the Rev. Henry Teong, who in his 'Journal,' under date March 28th, 1676, says "a cross wind last night brought from the island of Cyprus an infinite number of hawks" among the British fleet, of which he was at the time chaplain, and *at least fifty* were taken on his ship. The author of 'Riviera Nature Notes' describes a great arrival of birds of prey at Nice, but this is quite surpassed by what Bellonius tells us of Kites on migration in the 16th century at the mouth of the Bosphorus.

SHORT-TOED EAGLE. *Circaëtus gallicus.*

The authors of 'Les Richesses Ornithologiques' say that this is the commonest Eagle in the South of France, arriving in April in small flocks of 4 or 5; that a few always breed at Salon, which is 28 miles from Marseilles; that it is often seen in spring in the great forests of the Var; and that M. Arquier took two eggs at Tanneron, near Grasse. Mr. St. Quintin saw one on March 16th, 1901, within easy gunshot, at the Grotte de l'Ours.

PALLID HARRIER. *Circus swainsoni.*

Several individuals have been obtained at Nice by the Baron de Palluel, and a fine male which I presented to the Norwich Museum was, I believe, got near that place.

MONTAGU'S HARRIER. *Circus cineraceus.*

Included by Jaubert, but not by Duval-Jouve. A male Harrier believed to be *C. cineraceus* was seen by Mr. St. Quintin to come in from the sea; but I should have said that in most of France *C. cyaneus* was the commoner bird, yet *C. cineraceus* was formerly extraordinarily abundant in the Department of Vienne ('Rev. Zoologique').

SPARROW-HAWK. *Accipiter nisus.*

A. nisus is pretty common, and *Astur palumbarius*, according to the authors here quoted, not very rare, but I have no personal notes to give from my limited observations.

EGYPTIAN VULTURE. *Neophron percnopterus.*

When Jaubert wrote (1853) *N. percnopterus* was to be met with all the year, and bred at Seranon, which is just over the N.E. corner of the Department of Var, not to mention other places.

LAMMERGEIER. *Gypaëtus barbatus.*

Roux cites a capture in the Esterel Mountains, and there is in the Norwich Museum a well-preserved adult bird killed in the Magna Valley (Alpes Maritimes) many years ago, which has the whitest head and is probably the oldest of any of our series in the Museum.

CORMORANT. *Phalacrocorax* sp. inc.

April 30th, an adult vigorously flapping itself in the sea. Jaubert does not include *P. graculus.* Neither Wharton nor Whitehead give *P. carbo* as a bird of Corsica, but they say that *P. graculus* is fairly common there, so I will not be certain which it was that I saw off St. Raphael, as Corsica and Provence have a good deal in common.

PELICAN. *Pelecanus onocrotalus.*

The authors of 'Les Richesses Ornithologiques' are of opinion that the Pelican was formerly common; it is now a very rare straggler, but has been once met with and knocked on the head at Hyères.

STORK. *Ciconia alba.*

A "Cigogne" was seen passing over Lord Amherst's villa on April 20th, and I received one from near Nice. Ternier calls this species very rare in the Var, adding that it prefers an east wind both in spring and autumn, and that its migrations are very different from those of *Grus communis* (Ornis, 1899, p. 218).

HERON. *Ardea cinerea.*

The "Heron cendré" is by no means rare, but very few Heronries now exist in France. The African *A. atricollis*—a bird which might be expected to occur occasionally—has been taken at Draguignan (Revue Zool. 1854, vi. p. 6), and we learn from Pellicot that another southern species, the Buff-backed Heron, has been met with at Toulon. A Night-Heron was contained in the collection received by me from Nice.

LITTLE BITTERN. *Ardetta minuta.*

One found in the courtyard of a house in Nice. Neither *A. minuta* nor *Botaurus stellaris* breed in the Var; the former is the *Taurus* of Pliny, which he describes as found in the neighbourhood of Arles.

FLAMINGO. *Phœnicopterus roseus.*

I asked many persons if they had ever seen "Le Flammant," but with a single exception was always answered in the negative: one man produced a fine adult *Ardea garzetta,* and at the same time accurately described *Himantopus candidus,* but did not know its name; yet in Duval-Jouve's time Flamingoes were to be met with near Fréjus and Laval. Mr. Clarke gives an interesting account of them in the Bouches du Rhône, and in 'Ornis,' 1899, p. 231, there is a photograph of 35 nests in a clump taken at that place, which shows well the sociable habits of *P. roseus.*

GARGANEY TEAL. *Querquedula circia.*

Apparently a commoner bird than *Nettion crecca,* there being many at the poulterer's, but only one Teal. Jaubert says, apparently referring to *Q. circia*: "Sarcelloun, Charinchara, se montre seulement en février et en mars;" but a coil of eight small ducks, circling over Fréjus Marsh on April 17th, were evidently *Q. circia.* However, I was given to understand that none ever nested there, though Pellicot, who seems to have stayed at Fréjus, says "il est à croire même qu'il en niche;" that, however, was some years ago. I flushed what I considered to be a bird of this species in Algeria as late as April 4th (paired), and I suspect that a few breed in the north of Africa.

SHOVELER. *Spatula clypeata.*

S. clypeata, Dafila acuta, and *Mareca penelope* were all in Grasse market, some of them possibly from the Étang Consécanière, where Mr. Clarke saw 1000 Shovelers at one time, and many other Ducks as well.

GADWALL. *Anas strepera.*

A. strepera and *Fuligula cristata* only come in winter, while on the contrary *Anas boscas,* which is locally known as the "Col-vert," breeds.

LONG-TAILED DUCK. *Harelda glacialis.*

Was obtained, as the authors of 'Les Richesses Ornithologiques' inform us, two or three times near Hyères by that successful collector, M. Besson.

RED-CRESTED POCHARD. *Fuligula rufina.*

F. rufina and *Mergus merganser,* both considered "very rare" by Jaubert, were met with by Lord Lilford in Cannes market, but had perhaps come from the Étang Consécanière, where Mr. Clarke found the former common, and on his spring visit discovered a nest. The *Fuligula intermedia* of Jaubert is the hybrid which in England has been designated "Paget's Pochard," after the celebrated Norfolk surgeon, and of which I have an example alive; this cross between *F. ferina,* which is common in Provence, and *F. nyroca,* is certainly the least rare hybrid among the European Anatidæ, in a wild state. Several examples are described by Suchetet.

SCOTER. *Œdemia nigra.*

Either *Œ. nigra* or *Œ. fusca,* probably the former, comes at times to St. Raphael's Bay, and in large quantities if the boatmen's tales are to be believed; while I have had *Œ. fusca* from Genoa. These Scoters are confounded by French sportsmen with *Fulica atra,* both, according to the authors of 'Les Richesses Ornithologiques,' being called "Macreuses"; and this led Yarrell into ascribing to *Œ. nigra* the Coot battues at the mouth of the Rhone, of which Pellicot gives a good account.

TURTLE-DOVE. *Turtur communis.*

T. communis is stated to come in March, but we did not see any until May, which agrees with the time of their arrival in England. I was told that there were English Wood-Pigeons (Ramiers) to be shot in winter, but did not hear that they were netted as in some other Departments. Jaubert also includes *Columba œnas,* which I have seen in other districts, but not in the Var. All these species are found in North Africa, which has so much in common with the South of France.

Pin-tailed Sand-Grouse. *Pterocles alchata.*

In January 1837 several individuals, supposed to have been driven from a stony waste called " The Crau " by snow, were killed at Fréjus, and in January 1871, the same month that my Great Bustard (to be mentioned presently) was shot, a considerable flight appeared in the plain of the Gard (Pellicot).

P. alchata has strayed as far north as Lyons (Olphe-Galliard) and La Basse, while one has been killed at Nice.

Pheasant. *Phasianus colchicus.*

There are no Pheasants at Valescure, and the authors of 'Les Richesses Ornithologiques' give no hint that they exist in a wild state in the district; but a good many have been reared on the islands off Cannes, where they fly up in very orthodox style.

Greek Partridge. *Caccabis saxatilis.*

Jaubert says that the "Bartavelle" is very rare, and whether it was this species or *C. petrosa* which was hanging in a game-shop at Cannes I forget, but I think the latter; if so, it may have been imported from Sardinia.

Barbary Partridge. *Caccabis petrosa.*

We learn from M. Pellicot that *C. petrosa* has successfully multiplied in the island of Port Cros; and I once saw some specimens being hawked in the streets of Marseilles, but these may have come from Africa.

Red-legged Partridge. *Caccabis rufa.*

Absolutely sedentary, and very much commoner where we were than *Perdix cinerea*, which Jaubert terms a bird of double passage[*]. In 'Les Richesses Ornithologiques' (p. 419) the same author says that two races of *C. rufa* exist in the Var, differing much in size. Two in a cage at Grasse were certainly large and bright, but not equal to the splendid examples to be seen in Spain. The brightness of many Mediterranean species as compared with their more sombre hues in England is striking: is it the effect of the sun, which causes dead objects to fade, but seems to enhance the colours of the living?

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[*] Some years ago I spent two months in Lorraine, where I expected to find *Caccabis rufa* pretty common, but, on the contrary, it appeared to be exceedingly rare; on the other hand, I often saw a small covey of the Grey Partridge (*Perdix cinerea*), yet I do not think that either of them were migratory.

QUAIL. *Coturnix communis.*

Every one who has flushed Quails must remember the headlong way in which they fly, partly due to the straightness and rapidity of their course, partly to their being dazzled by the light (for in some cases it happens immediately after a night journey), but they do not at any time like to rise in the heat of the day if they can avoid it. Sometimes, when flushed by one sportsman, they fly blindly direct towards another, without seeing where they go, though seldom travelling more than five hundred yards or rising more than six feet from the ground.

In spring the chief arrival, says M. Pellicot (whose admirable account of Quail-shooting occupies eight pages), takes place at 8 A.M.; but some have been found earlier, and there are times when they may be seen dropping in from the sea all day. When this is the case, it should not be inferred that the wind has been favourable, but quite the reverse, for migratory Quails which left Algeria the evening before ought to have made the coast of France by sunrise if they fly at 37 miles an hour, which is a very reasonable estimate. (*See* 'The Field,' July 9th, 1898.) First comers are called " Cailles vertes," in allusion to the green tints of spring.

The Quail has been accounted a nocturnal bird from the very earliest times, for even in the Book of Exodus the sacred writer says, "at even the Quails came up," in entire accordance with their habits at the present day. Any therefore that come in the daytime are birds which have been late in starting, or more likely have been delayed by the wind *en route*. They arrive at the end of April, but many dangers are in store for them, both by land and by sea, as exemplified by the following incident. Happening one day to be at Ciotat, a village on the coast, previously mentioned in my account of the Wren, M. Pellicot saw some fishing-boats come ashore with ten small sharks ("Cagnoose," probably *Alopecias*); these voracious creatures were opened in his presence, and contained from eight to ten Quails each, which they had no doubt found floating. Quails are especially liable to misadventure, but the remains of various small birds, and even Owls *, are also to be picked up on the shore near Saint Raphael.

In autumn the return passage, according to Pellicot, is generally between the 15th of September and the 10th of October, and, considering the hosts of its enemies, it is not to be wondered at that the Quail is decreasing throughout the whole of France. In Norfolk it used to be abundant, but it seems absurd to seek for the cause of its diminution in agricultural changes in England, when the annual massacre which goes on in the south of Europe is enough to account for it. The bird's habits of concealment are very great, and in confinement it creeps into moss like a mouse. In Egypt I have seen, more than once, a small crop of lentils, which at first sight did not seem to hold a single specimen, prove full of them, forty or fifty brace, perhaps, getting up out of a patch 60 feet square.

BLACK GROUSE. *Tetrao tetrix.*

T. tetrix, *T. bonasia*, and *Lagopus mutus* occur on the mountains in the Alpes Maritimes, but it can only be occasionally that their wanderings extend to the Var. The authors of 'Les Richesses Ornithologiques' say that the inhabitants of some of the valleys in the Hautes Alpes have actually domesticated *T. tetrix* to a certain extent. *T. bonasia* was served at the hotel once or twice while we were there.

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* Here it will not be inappropriate to quote a letter, written by Mr. J. S. Walker on board the yacht 'Aline':—"Ever since we left Tunis, all along the Malta Channel and upwards to Italy, the sea was covered everywhere with numbers of large brown butterflies, moths of all sizes, and dragon-flies just dead; for four or five days we sailed across many miles of water without finding any diminution in their numbers * * * * but what interested us more was the number of dead birds we passed, among which we recognised Hoopoes, Quails, Wheatears, and Kestrels." ('The Field,' April 12th, 1873.) Although so many drowned birds were seen, Mr. Walker adds that the number of live examples which passed the vessel was comparatively small. Quails are sometimes taken at the Camarat lighthouse, and they have been known to fly against boats drawn up on the shore.

ANDALUSIAN HEMIPODE. *Turnix sylvatica.*

Included in Jaubert's 'List,' but no occurrences specified. Mr. Howard Saunders doubts its having been really met with in France in a wild state, and its inclusion in the British List is equally open to question. Count Salvadori records one seen in the market at Nice, but that may have come from Algeria, where, however, I did not find it common.

SPOTTED CRAKE. *Porzana maruetta.*

As the "Râle marouette" is rather rare in Algeria, it is surprising that it should be so common in the South of France. It must be very abundant somewhere near Grasse, as during March there were always a few in the market, and on March 27th no less than 31 at one stall. Pellicot says that at Fréjus these birds are called "Marsenquo," from their appearing in that month, and that hundreds have been killed by a single gun in the course of a migration, there being generally two or three great days of passage in spring. March is a month one associates with *P. maruetta* in England, when, no doubt, some of the migrants which we receive are the same which have escaped the French "chasseurs," who appear particularly partial to this palatable Rail.

MOOR-HEN. *Gallinula chloropus.*

The "Jardiniero" arrives in autumn, departs in spring (Jaubert). *Porzana parva* and *P. bailloni* are included in the same list, and the former is also especially mentioned by Risso; but though I carefully looked out for them in the market, I could not see one. Degland and Gerbe state that they examined a Purple Porphyrio which was killed at Trans, a town in the Var.

CORN-CRAKE. *Crex pratensis.*

Gould (B. of Gt. Br.) cites an instance of several specimens being captured on a ship in the Mediterranean in October, which had probably left the South of France a few

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WATER-RAIL. *Rallus aquaticus.*

Three "Râles d'eau" in Grasse market on March 20th, the month of their arrival as given by Duval-Jouve, who was no doubt familiar enough with this market, where there was also a *Fulica atra* on the 23rd, which had perhaps missed its way, for Duval-Jouve says it is found at that season in ditches.

[BRAZILIAN JACANA. *Parra jacana.*

M. Jaubert informs us in his 'List' (*l. c.* p. 426) that there was in 1853, in the collection of M. Jouffret, a South-American Jacana which had been taken alive in the marshes at Fréjus, and had been recently mounted when he examined it. No further facts are given in 'Les Richesses Ornithologiques' (*vide* p. 486), but there is nothing impossible in *P. jacana*, which is known to be a migratory species, crossing the Atlantic by the help of a ship. All the group are wanderers, and the fact is not much more remarkable than the capture of Allen's Porphyrio 700 miles from the African coast (P. Z. S. 1900, p. 660), or of three Belted Kingfishers in Ireland and Holland. A bird on the wing is, under favourable circumstances, nearly as much at rest as when it is standing, the real difficulty is to know how such wanderers as these subsist without food for the time required for the transit.]

CRANE. *Grus communis.*

The distribution of the Crane is curious. Twice a year, it is said, phalanges of "Grues" pass over the Var, so high that they are scarcely visible; and the question is, where are they going? Their destination is probably rather N.E. than N. in spring. M. Ternier thinks that when the Crane reaches the Var on its return journey to the south in autumn it turns to the west; and if so, no doubt it continues in a westerly direction along the line of the Pyrenees (Ornis, x. p. 210). It seems clear that the extraordinary numbers seen in Spain by Col. Irby do not all come to France.

GREAT BUSTARD. *Otis tarda.*

In 1871 I received an "Outarde barbue" (Provençal "Ooutardo") from Nice, which had been shot on the 17th of January, after the same severe weather which caused a remarkable migration of the species into England and Belgium (*cf.* 'Zoologist,' p. 2770). Pellicot alludes especially to this Siberian winter, when numerous flights of *Alauda arvensis, A. arborea, A. calandra,* &c. appeared on the shore. I was in France at the time and remember it well: the day before my Bustard was shot I had bought for two sous a dead *Buteo vulgaris* frozen as stiff as a board! while the starved Kestrels sat in the trees as if they were asleep, and gangs of famished Rooks searched the river's edge. In 1890 or 1891 a fine old male *O. tarda* was shot at Bocca on the coast, also, I believe, during snow.

LITTLE BUSTARD. *Otis tetrax.*

Jaubert calls the "Canepetière" very rare, but I remember having a good view of one in Department Gard, not far from Nîmes, the home of the naturalist Crespon. In Algeria *O. tetrax* always went by the name of "Poule de Carthage," a name which Pellicot assigns to *Œdicnemus crepitans.* The latter is common in some parts of France, as markets testify, but is rare in the Var, which, from its hilly nature, is not much adapted to such birds. An excellent book on the habits and distribution of Bustards and Plovers in France has been lately published by M. Lafourcade, including both of these species, and a great deal of information about them.

COLLARED PRATINCOLE. *Glareola pratincola.*

An interesting fact mentioned by Jaubert in his 'List' is that *G. pratincola* has been known to nest on the shore near Cannes, and one killed on the island of St. Honorat is in the Cannes Museum. Mr. Clarke saw a few of these birds at the mouth of the Grand Rhône. I think that they have a great resemblance to the Terns in their flight and cry, however far removed they may be from them in kinship.

COURSER. *Cursorius gallicus.*

Included in Jaubert's 'List,' but no occurrences specified; it can only be a very rare straggler.

OYSTER-CATCHER. *Hæmatopus ostralegus.*

In the South of France *H. ostralegus*, which in England is often called the "Sea-pie," is for a similar reason known as "Agasso de Mer," namely, from its resemblance to the black-and-white Magpie.

RUFF AND OTHER WADERS. *Machetes pugnax, Charadrius pluvialis, Vanellus vulgaris.*

Several of each of these Waders were seen in one or other of the markets, as were *Gallinago cœlestis*, one *G. gallinula*, and one Woodcock (on a former visit); one *Totanus calidris* was met with at the mouth of the Argente. *V. vulgaris* sometimes flies round the Camarat lighthouse, but seldom or never strikes the lantern; other sorts of Plovers are occasionally got by the principal keeper, with a certain number of Quails and land-birds. Three *M. pugnax* were already in process of change as early as March 9th.

LITTLE RINGED PLOVER. *Ægialitis curonica.*

Several examples of *Æ. curonica* and *Æ. cantiana* were seen running about at the mouth of the Argente, probably merely on passage; but the authors of 'Les Richesses Ornithologiques' say that *Æ. curonica* breeds regularly on the Verdon River.

MARSH-SANDPIPER. *Totanus stagnatilis.*

Of this "Chevalier" the authors of 'Les Richesses Ornithologiques' write:—"Il a été rencontré simultanément et à diverses reprises, dans les marais d'Hyères et de Fréjus, pendant les premiers jours de juin. M. Besson, d'Hyères, croyait à sa reproduction dans les environs de cette ville." That it should breed there seems unlikely from what authors tell us of its distribution, but Besson was evidently a good observer.

GREEN SANDPIPER. *Totanus ochropus.*

T. ochropus is pretty common in March and April, and is probably found throughout the year, but that does not prove that it breeds*. A pair of *T. hypoleucus* were skirting the shore on April 30th; it has bred once on the banks of the river Verdon ('Les Richesses Ornithologiques,' p. 461). In addition to these, Jaubert includes *T. glareola, T. fuscus, T. glottis, Squatarola helvetica,* and *Eudromias morinellus.*

GODWITS. *Limosa lapponica* and *L. belgica.*

Lord Lilford does not say which the Godwit was that he met with at Toulon, but, according to Jaubert, *L. lapponica* has only occurred on passage, and that rarely, while the species which Mr. Eagle Clarke met with was the Black-tailed Godwit (*L. belgica*).

SANDWICH TERN. *Sterna cantiaca.* "Hirondelle de mer caugek."

About a dozen birds came round our boat while anchored for fishing in St. Raphael Bay on April 11th, and often dropped into the sea with a splash in pursuit of small grey mullet and young sardines; again on May 9th a single specimen was placidly floating on a box in the sea. Jaubert regards *S. cantiaca* as of only accidental occurrence, but it seems from the experience of English observers to be a common bird in the Western Mediterranean. Far rarer are *S. caspia,* which has once occurred at Nice (Ibis, 1887, p. 283), and *S. leucoptera,* which has been met with as far inland as Draguignan (Jaubert), while other Terns included in his 'List' are *S. hybrida, S. nigra, S. minuta,* and *S. hirundo.*

LESSER BLACK-BACKED GULL. *Larus fuscus.* "Goéland à pieds jaunes."

There were several of these "Gros Gabians" in St. Raphael Bay, and a few Herring-Gulls—*L. cachinnans* Pall. (*L. leucophæus*) I presume—with a darker mantle than our *L. argentatus,* and no doubt yellow legs, but I handled none of them.

MEDITERRANEAN BLACK-HEADED GULL. *Larus melanocephalus.*

Lord Lilford, who, though laid up with acute rheumatism on board his yacht, missed no opportunities, met with *L. melanocephalus* and *L. canus* at Toulon, and was further told of many Gulls breeding on the islet of La Gabinera, to which fact it perhaps owes its name, "Gabian" being a Gull in the native dialect.

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* Nor does the frequent presence of this species in Norfolk and in Algeria in summer prove it. (See Ibis, 1871, p. 290.)

BLACK-HEADED GULL. *Larus ridibundus.*

The "Mouette rieuse" must be far commoner than *L. melanocephalus*, yet it is curious, as shown by M. Ternier's maps, in how few of the inland Departments of France *L. ridibundus* is met with commonly, though a good many examples are to be seen on the sea-coast.

CAPE PETREL. *Daption capensis.*

We learn from Degland and Gerbe that a "Pétrel Damier" (*D. capensis*) was killed at Hyères in October 1844 by M. Besson, the bird-stuffer, the same who the year after, as Prof. Newton points out, shot the first *Ardea melanocephala.* Besides this, two were obtained at Bercy on the Seine, a suburb of Paris; two also in the Department of Sarthe prior to 1878 (M. Amb. Gentil); and one, according to Van Kempen, at Dunkerque in 1880. *D. capensis* has also been recorded twice in England, once in Wales, and once in Ireland; but six are known to have been on one occasion released in the English Channel (Ibis, 1867, p. 188), and the practice may have been followed by sailors elsewhere.

MEDITERRANEAN SHEARWATER. *Puffinus kuhli.*

One in Cannes Museum, where the curator showed me a specimen of *Procellaria pelagica* which had been picked up on the shore. The latter I have observed off the Balearic Islands—near which I have also seen *Puffinus kuhli.* It is a common Mediterranean bird, both in the east and in the west.

LEVANTINE SHEARWATER. *Puffinus yelkouanus.*

In Jaubert's 'List' the name of *P. yelkouanus* must be substituted for *P. obscurus*, and *P. kuhli* for *P. cinereus*, which also I suppose Pellicot's *Procellaria puffinus* to be. *P. yelkouanus* breeds in Corsica (Ibis, 1885, p. 48); but I have not met with it so far north, only having seen it in the south of Italy.

Red-throated Diver. *Colymbus septentrionalis.* "Plongeon cat-marin."

A feather on the shore confirmed me in the opinion that two large Divers, seen on a former visit, were *C. septentrionalis*; but as Jaubert also includes *C. arcticus*, I cannot be quite sure. According to 'Les Richesses Ornithologiques' the latter is much the rarer of the two.

Eared Grebe. *Podicipes nigricollis.*

Five Grebes are included by Jaubert—*P. cristatus*, *P. griseigena*, *P. auritus*, *P. fluviatilis*, and *P. nigricollis*; but it appears that the last two alone can be called common, and these only in winter. *P. nigricollis* I have seen at Gibraltar in January, and Canon Tristram met with it in Algeria.

Razorbill. *Alca torda.*

Reported by St. Raphael boatmen to be in considerable numbers at the end of April, but we saw only one fine adult and a young bird. Jaubert also includes *Fratercula arctica* as occasionally seen by fishermen in July and August, and Prof. Giglioli thinks it possible that both these species may breed in the Mediterranean. *Uria troile* is much rarer, and has not yet been added to the Var list.

Before concluding, I should like to devote a few words to the migration of land-birds across the Mediterranean, which, as has been said, takes place almost entirely at night. If it were by day, we should be astounded at the numbers, but, as a matter of fact, what an ornithologist watching on the coast of France sees is only a very small portion—and that a belated portion—of the feathered pilgrims. Yet it may be that a certain number of Kites, Buzzards, Kestrels, Swallows, Wagtails, Hoopoes, Storks, and Cranes cross the great sea by preference in the daytime. All birds are not equally nocturnal, and there are indications that the abovenamed are to some extent day-migrants; but the majority of birds, especially small birds, would be exposed to considerably more danger by day than by night, from Hawks and Gulls, and even from man.

So far as the Mediterranean is concerned, the fact that most birds migrate by night is not a sufficient proof, as some have alleged, that they do not travel by sight, a sense which is known to be very highly developed in them (*Gyps fulvus* and *Cypselus apus* for example), for unless the night were foggy or exceptionally dark, coast-lines and mountains would be visible. They probably have greater powers of seeing in the dark than we have; and supposing a Corn-crake or a Turtle-Dove nearly half a mile up in the air, which is no unreasonable altitude, to approach the coast-line of Provence, no doubt some of the island of Corsica would be visible to it, and the contour of a portion of the Italian coast; nor would it on starting have flown many miles from Algeria before either Sardinia or the Balearic Isles came into view.

If we look at the map, it is evident that there is hardly any part of the Mediterranean Sea where a migratory bird, crossing on a fine night, need be out of sight of land for more than three or four hours, and during that time its sense of direction would keep it pretty much in the course it had been taking when it started.

Now as to the time required for the transit. Under favourable circumstances it could not take a Turtle-Dove more than 11 hours to fly from Algiers to the Var—that is, at the rate of 37 miles an hour, which is what Mr. Tegetmeier tells us that a Homing-Pigeon has been actually known to attain; but supposing a strong wind to blow directly behind, it would perhaps do the voyage in half that time; moreover, a Homing-Pigeon does not fly straight, but generally describes large curves.

It is almost certain that the greater part of the spring migrants—practically all which are not delayed—can cross the Mediterranean in its broadest part in one night, and do so. At the same time, they are averse to running risks, and although a hundred observers in the English Channel have proved that migratory birds are not dependent on a short sea passage, it is natural that where they have the choice they should to some extent prefer it, knowing themselves to be more or less at the mercy of the winds. Accordingly the observations of Colonel Irby and others, recorded in 'The Ornithology of Gibraltar,' seem to prove that however many African migrants may arrive in spring on the south coast of France, a far greater number cross from Morocco into Spain, where the journey is very much shorter for them.

As regards wind, that is a subject on which there are many opinions, and those rather contradictory. It can hardly be that any birds prefer a head-wind for their migration, though if long delayed at the point of departure they may be found to accept it; and then they are naturally more in evidence on landing, because that same head-wind has been keeping them back, and the observer sees them, which he would otherwise not have done. It is evidently a head-wind which makes Quails, Woodcocks, &c. occasionally appear so fatigued on landing, and not the length of the sea-passage; and this must also be the reason when, as sometimes happens, they are seen to settle on the water, no doubt in consequence of exhaustion.

In the same way it was obviously the N.E. wind, being a *head*-wind, which in April 1895 caused an unwonted influx of birds to arrive on the coast at Bordighera (Zoologist, 1895, p. 309), and the westward movements of Pigeons and Starlings described above (see p. 364) are only explicable on the theory of a head-wind coming from the west. Of one thing we may be fairly certain, that wind is the key to the right understanding of ornithological migration, and that when we do understand it, what seem to be erratic movements will admit of explanation, though without that knowledge they are not likely to be ever made clear.

XXIX.—*Field-notes on some Birds observed in Western China.* By Capt. H. R. Davies *.

Phasianus elegans (Cat. B. xxii. p. 329).

Stone's Pheasants are common in Western Yunnan. They are not usually found much below 4000 feet, and are most plentiful near the tops of the ranges at an altitude of from 6000 to 8000 feet, in long grass and fern, or in fir-woods. I have usually met with them singly or two together, but on one occasion I saw a covey of ten. The crow of this bird is hardly distinguishable from that of the English Pheasant, and the noise the cock makes when flushed is also the same. I have not often seen it in the Tibetan part of the country (W. Szechuen), though I shot one a few marches south-west of Li-tang at 10,500 feet.

Chrysolophus amherstiæ (Cat. B. xxii. p. 342).

In Yunnan this species is about as common as the last-mentioned, and is found at fairly high elevations, usually in forest. It is difficult to make individuals fly, and when they rise they do so without crowing and with very little noise of the wings. They appear to be "soft" birds, very easily killed. The note is a peculiar rasping sound. Specimens were obtained in W. Yunnan at 7000 feet, and in Kweichow at 7700 feet.

Ithagenes geoffroyi (Cat. B. xxii. p. 269).

This Blood-Pheasant is common in many parts of N.W. Yunnan and W. Szechuen.

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* [The following interesting field-notes are contributed by Captain H. R. Davies, Oxfordshire Light Infantry, and are based on observations made during two journeys in Western China—the first in 1898-99 in the Northern Shan States and Yunnan; the second in 1899-1900 along the western borders of Yunnan and Szechuen, and thence eastward to the Yangtse.

Specimens of all the birds except the Crossoptilon and Francolin have been received and identified, and as regards these there can be little doubt to what species they belong.—F. W. Styan, Shanghai.]

All the country north of lat. 27° 45′ and west of long. 102°, though nominally part of China, is physically and ethnologically Tibetan.

The Blood-Pheasants are usually found in coveys of from ten to twenty. Their call begins with one very long-drawn wheezy whistle, followed by four that are sharper.

They run fast and are difficult to flush; if forced to rise, they soon pitch again. Their plumage must be very strong, as I found several times that when plainly hit while running, with No. 6 shot, they appeared little the worse. I have never seen them at elevations below 11,000 feet, and they seem to keep just below the snow-line, which varies at different times of year. They appear to be confined to the forest, and I have never met with them on the bare tops of the ranges: they were common in all parts of the country that were suitable to them, especially along the road from Yerkalo, lat. 29°, long. 99°, north-eastward to the Upper Yangtse.

CROSSOPTILON TIBETANUM (Cat. B. xxii. p. 293).

These Eared Pheasants, large white birds with dark-coloured tails, were common in the same sort of localities as the Blood-Pheasants. They are found in large coveys and run very fast, scarcely ever flying, while they are so wary that although I saw a great many I could never get near enough for a shot. Their call is a very loud harsh crow, which can be heard for a mile or two. They keep to high altitudes and are often found in the snow. The furthest south that I have seen them is a little above lat. 28° to the N.E. of Chung-tien.

TETRAOPHASIS SZECHENYII (Cat. B. xxii. p. 103).

Found in similar localities to those inhabited by the last-mentioned species, but not so commonly; it lives in coveys. The call is a crow like that of the Eared Pheasant, but much less loud and harsh. I have twice heard whole parties crowing together, yet apparently not from alarm, as in both cases they were a long way off and had not seen or heard me.

I have noticed them in N.W. Yunnan between Pong-tse-lei and A-ten-tse, and also further north on the road from Yerka-lo towards Batang.

PERDIX SIFANICA (Cat. B. xxii. p. 195).

The Sifan Partridges I shot near Dzongun (W. Szechuen), lat. 29° 15′, long. 99° 15′, at an elevation of 11,600 feet. They were in a covey of five, in a dry valley covered with scrubby bushes, were easily flushed, and flew well.

FRANCOLINUS CHINENSIS (Cat. B. xxii. p. 136).

I found the Chinese Francolin chiefly in the lower-lying parts of Yunnan, towards the borders of Burma and Tongking. It is specially numerous in the valley of the Salween. I heard a few calling at Tung-hai, between Yunnan-fu and Tongking (6200 feet), but I do not think it is common at such an elevation.

BAMBUSICOLA FYTCHII (Cat. B. xxii. p. 257).

Fytche's Bamboo-Partridge I have only seen once in Yunnan; this was in the Mekong Valley below 4000 feet. I have met with the birds several times in the Northern Shan States, usually in coveys of five or six among thick jungle, where they are difficult to flush without a dog. They rise with a sort of whistling scream, and occasionally fly up into the trees.

MERGANSER SQUAMATUS Gould (Cat. B. xxvii. p. 478)[*].

This bird was observed in Yunnan near Lung-ling, lat. 24° 30′, long. 98° 30′, at 4000 feet, and near Yunnan-fu at 6000 feet. It is common in the high-lying plains of Yunnan, and I have seen it at 14,000 feet in the Tibetan part of Western Szechuen.

[*] [One of the examples obtained in Yunnan is now in the British Museum, and has been compared with the type and with those collected by Capt. Wingate (*cf.* Ibis, 1900, p. 602). It is not sexed, but is in the plumage of a female, and is perhaps immature, and in this state is hardly to be distinguished from the Common Goosander; the species can, however, be recognised by the double crest. As no specimens were brought back from Szechuen, it is impossible to say to which form they belonged.—F. W. S.]

XXX.—*On Indian Birds' Eggs and their Variations.*

By E. C. STUART BAKER, F.Z.S.*

IT is only of late years that naturalists have begun to assign much importance to birds' eggs from any point of view. Now, however, it is beginning to dawn on many of them that the colour, the texture, and even the shape of these may have some connexion with, and may assist in determining, the classification of birds. It is therefore very interesting to note all individual differences in birds' eggs and, further, their generic and family variations. The subject, however, opens up so vast a field that it behoves us to take only a very fragmentary portion on which to dilate, otherwise we may wander from the infinite individual variety shown in the Guillemots' eggs to the very startling contrasts shown in those of Cetti's Warbler, and may cover the whole world and yet not make much advance. Here, in India, if we confine our attention to the Passerine birds, ample and interesting work may be found to occupy an indefinite time If we take up the 'Fauna of British India' (Oates and Blanford) and turn to the very first family, the *Corvidæ*, that is to say the Crows and their nearest allies, we find that Oates has divided it into three subfamilies, containing, firstly, the Ravens, Crows, Magpies, and Nutcrackers, which he unites in the subfamily *Corvinæ*, or typical Crows; secondly, the *Parinæ*, or Titmice; and thirdly, the *Paradoxornithinæ*, or birds which he designates Crow-Tits.

Everyone, of course, knows what a common Indian Crow's egg is like, and we find that in those of the *Corvinæ* there is a strong *family* likeness in all cases. An objector may pick up a Crow's egg and then one of the common Indian Magpie (*Dendrocitta rufa*) and ask wherein the resemblance lies. It *is* there all the same: first let him get a series of these eggs and he will find some more typically Crow-like than others; then let him collect a series belonging to the

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Cissæ, or Green Magpies, and to the *Garruli*, or Jays, and he will find that he can obtain an almost unbroken gradation of colouring from the most typical Crow's egg to the most aberrant one of *Dendrocitta*.

Eggs, therefore, in the *Corvinæ* bear out the classification obtained by other means.

Next come the *Parinæ*. In this subfamily the eggs are very characteristic. The colour ranges from a pure white, which is exceptional, to a faint pinkish white densely speckled with red, sometimes so dark as to appear black. In texture the shell is remarkably constant, being smooth, but not highly glossed, and often somewhat porous, while the shape is typically a broad, obtuse oval. This subfamily calls for no remark.

The third subfamily, or *Paradoxornithinæ*, is by far the most interesting; but, unfortunately, it is also the least known. It contains a number of birds, which in general outward structure are *sui generis*; their most typical characteristic being undoubtedly the bill, which is short and very deep, though variable in these respects. In plumage, and in the structure of the wings and tail, they seem to belong rather to the *Crateropodidæ* than to the *Corvidæ*. Again, in habits—and I am very well acquainted with several members of the constituent genera—the birds are distinctly far nearer to Babblers of some sort than to either Crows or Titmice.

Now let us see what the eggs tell us. First, we are met with the remarkable fact that this subfamily contains birds which lay eggs of absolutely different types. In *Conostoma*, *Paradoxornis*, and *Scæorhynchus* the ground-colour is white or nearly so, in the latter case merely tinted with some shade of yellow, grey, or brown. The markings consist of *indefinite* specks, spots, blotches, and cloudings of grey, sienna-brown, dull purple, and lavender; in some specimens they may be very sparse indeed (I have one of *Paradoxornis flavirostris* which is almost white), in others rather dense, but there is a regular gradation between all the variations. In *Suthora*, the fourth Indian genus of this subfamily, the eggs are in colour like those of the Hedge-Sparrow. Very few of them indeed have been taken, but all yet found, whether in India, China, or Malaya, have been of this colour, and we must accept it as a fact that they are blue, surprising as it may be. Now none of these eggs bear any resemblance to those of either Tits or Crows,—nor are any of the nests like theirs; on the other hand, they do bear a very strong resemblance to certain eggs of the *Crateropodidæ*. Those of the first-named three genera are, in character, shape, and texture, extremely like some laid by the Tit-Babblers, such as Mandelli's Tit-Babbler (*Schœniparus mandellii*), and in character and shape like some belonging to the Yellow-eyed Babblers (*Pyctorhis*).

The lovely blue eggs of *Suthora* are like many Crateropodine eggs, such as those of the White-eyes *.

The nests of the members of all the genera of this subfamily are wonderfully alike, and approach more nearly those of the Babblers than those of the Crows.

We therefore learn that *Scæorhynchus* is nearer *Paradoxornis* than is *Suthora*, and that the position of these two genera in 'The Fauna of British India' should be reversed. Furthermore, the eggs and nests in the subfamily show affinities not to the *Corvidæ*, but to the *Crateropodidæ*, and when taken in conjunction with the habits and manners, and in the absence of internal anatomical evidence to the contrary, prove, I think, that it is to the latter family that it must be allied.

The next family is the *Crateropodidæ*, a huge series, containing in Oates's book no less than 253 species, while more have since been obtained, bringing the number up to the vast total of 258.

This great mass has been divided into five subfamilies, which we will take one by one. The first is the *Crateropodinæ*, which contains the birds known as Laughing Thrushes, Babblers (of the "Seven-sisters" kind), and Scimitar Babblers. Now the characteristic point about the oology of this subfamily is that the eggs are whole-coloured, *i. e.*, they are all white or all blue; but amongst the different genera there is one in which the eggs of certain members are sometimes wholly blue and sometimes spotted, and of others always spotted. I refer to the Laughing Thrushes of the genus *Trochalopterum*, a handsome group of birds usually furnished with fine colour on the wing, in many cases not unlike the speculum of a duck, but of course never metallic.

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* Mr. Oates places *Zosterops* in his *Crateropodidæ*.

Now the strongest affinities shown by this genus are undoubtedly to *Garrulax* and *Ianthocincla*, typical Laughing Thrushes, all laying whole-coloured eggs ; but, on the other hand, I think, the individual birds show certain characteristics found in members of other subfamilies, notably in *Actinodura*, and less so in *Lioptila* and *Sibia*—all of which genera belong to the subfamily *Brachypteryginæ*, and lay spotted eggs, yet make nests very similar to those of *Trochalopterum*. We may therefore consider that this genus forms the connecting link between the first subfamily and the others.

If we admit this, it would necessitate the alteration of the order in which the genera are placed by Oates, and they might be arranged thus :—(1) *Xiphorhamphus*, (2) *Pomatorhinus*, and (3) *Ianthocincla*, laying white eggs ; (4) *Dryonastes* and (5) *Garrulax*, laying either white or blue eggs ; (6) *Argya*, (7) *Crateropus*, (8) *Grammatoptila*, and (9) *Stactocichla*, all laying whole-coloured blue eggs ; and finally *Trochalopterum*, the birds of which genus lay either whole-coloured blue eggs or else have them more or less spotted and speckled.

As regards the two genera which lay either white or blue eggs, I can suggest no natural division following the coloration ; but future workers on this subject should note that the white-headed Laughing Thrushes not only lay eggs which are white, but which are also totally different in texture and shape from those of any other Laughing Thrushes with the one exception of *Dryonastes galbanus*.

The gloss on the eggs in these two genera varies in extent from intense brilliance in the Rufous-necked Laughing Thrush to comparative dullness in the Necklaced Laughing Thrushes. The smoothness again varies to the same extent, and the porousness of the shell and closeness of texture in much the same degree. The shells in the white-headed birds, however, are far denser, harder, and more polished, though not so glossy as in some other cases; and the surface, if examined very carefully, will be found to be much pitted, a characteristic which I have noted in no other egg in this subfamily except in that of *Dryonastes galbanus.*

It is very curious to note that both the above-mentioned genera lay two varieties of eggs, as they are naturally linked together by Austen's Laughing Thrush, which itself lays eggs either pure white, or of the distinct yet pale blue of the egg of the Rufous-necked Laughing Thrush.

We are hence led naturally, according to the egg system, into the *Timeliinæ,* the members of which normally lay spotted eggs. Examining this group, we find that there is one genus which does not usually do so, viz. *Stachyris,* which consists (so far as India is concerned) of three little birds, two of which, the Golden Babbler and the Allied Babbler, are practically identical, and the last is the Black-throated Babbler. Now, this genus *Stachyris* formerly contained other species, which lay spotted eggs, but Oates—partly for that reason—formed them into a new genus *Stachyridopsis.* I now find, however, that all the members of the first-named genus sometimes lay spotted eggs also. I have several clutches of those of the Golden Babbler in my collection which are distinctly spotted, in one case almost profusely; and I have also an egg of the Black-throated Babbler which has faintly discernible marks on it (this and one other are the only spotted specimens I have seen among some three or four hundred clutches assigned to the latter bird).

In this genus *Stachyris,* which sometimes lays spotted, though generally pure white eggs, we have the connecting link with the last subfamily.

The third subfamily, *Brachypteryginæ,* is of a rather mixed nature, and contains certain birds the position of which will have to be altered.

Broadly speaking, the eggs in this group are marked in some way, with the exception of those of *Hodgsonius, Larvivora,* and the White-eyes (*Zosterops*). The Short-wings (*Brachypteryx* and *Drymochares*) lay eggs totally different from those of the rest, and they may be roughly described as being pale olive-brown—that is to say, the ground-colour is a pale stone or greenish-grey, almost obliterated by a very fine freckling of some shade of olive-brown. These birds, it has been ascertained, first by Mr. A. G. Cardew as regards *Brachypteryx*, and then by myself as regards *Drymochares*, are Thrushes, the young having the plumage of that family; they have therefore to be eliminated, not only from the subfamily, but from the family *Crateropodidæ* altogether.

As regards *Larvivora* and *Hodgsonius* I dare not venture to give an opinion beyond saying that I believe it will eventually be found that they cannot be placed here.

Another genus, *Myiophoneus*, may also have to be placed with the Thrushes. It makes nests and lays eggs much like theirs, but it cannot be said that the young are very Thrush-like.

The fourth subfamily (*Liotrichinæ*) contains a heterogeneous assemblage of birds, the majority of which are probably, if not certainly, of this family, but are rather difficult to place with exactitude. All lay spotted eggs except the Fire-cap (*Cephalopyrus*), but beyond this the eggs have little in common. That beautiful genus of rare birds the Shrike-Babblers (*Pteruthius*) shows affinities in some respects to the Crow-Tits and also to birds of many other families. The nests are fragile-looking cradles, pendent as a rule; the eggs are white and sparsely spotted.

The *Ioras* are little green fluffy creatures which rejoice in the distinction of being the only birds that lay eggs marked with pure grey, unmixed with red.

Chloropsis contains the "Green Bulbuls," as they were called in Jerdon's day, and their affinities are all, I believe, with the true Bulbuls; but certain differences may entitle them to be kept apart, and in this case they should, with one or two other genera, form another subfamily. Their eggs, of a very pale pinkish white, are more or less speckled with darker pink and claret-colour, or with a few spots verging upon black; they are distinctly Crateropodine in character.

Melanochlora contains but one species, formerly known as the "Sultan-Tit." The nidification of this bird shows that its former taxonomic position was probably correct; the nest is similar to that of those Tits which build in holes and hollows, and the eggs are true Tits' eggs, and can be very closely matched by many specimens of those of the genus *Machlolophus*. This bird should also, I consider, be withdrawn from the *Liotrichinæ* and placed in the subfamily *Parinæ*, along with the true Titmice.

Psaroglossa spiloptera has commonly been considered a Starling, and this it undoubtedly is in habits as well as in nidification. The nest is that of a Myna or Starling, and is placed in holes and hollows in trees. The egg is blue and is spotted; in general characters it shows strong affinities to those of the Mynas and the *Eulabetidæ* or Hill-Mynas. This species, also, should be removed from the *Liotrichine* "rubbish hole," and exalted to its former and proper position amongst the *Sturninæ*.

Hypocolius ampelinus is a bird of which I know little, but the observations of Mr. Cumming seem to show that it comes very near the Bulbuls, and hence probably its right place is next to them.

The subfamily *Brachypodinæ*, or Bulbuls, is one that calls for no remark, as almost every egg laid by any of the members bears its stamp upon it. All have the ground-colour of some shade of pink, though it is sometimes practically white, and all are marked with shades of red and brown, the predominant colour being red of some kind.

The family *Sittidæ*, or Nuthatches, is a small group containing, in India, only the single genus *Sitta*, while the habits of all the species are alike, and the nidification and eggs practically the same—that is to say, all lay white eggs, more or less spotted with red, in holes of trees or rocks. The main difference of habit is that some reduce the dimensions of the entrances to their nest-holes by means of a mud plaster, and others leave them as found, or enlarge them to suit their own convenience.

The next family, the Drongos or Drongo-Shrikes (*Dicru-*

ridæ), is placed by Oates in an isolated position between the *Sittidæ* and *Certhiidæ*, with neither of which it has any natural connexion. It is probable that the most casual observer, on watching the "King-Crow," as it is popularly termed, would consider it a "Flycatcher," and did he hold it in his hand he would probably call it a Shrike. Many naturalists would agree with the latter view, and in fact the Drongos are generally placed with the Shrikes or close to them. Here again the natural position of the bird is borne out by the nidification and eggs. Certainly the nest of the ordinary King-Crow may not be much like that of the Black-headed or other common Shrike, but let us look a little further afield and see whether we cannot find similar structures built by other acknowledged forms of that group. How about the Cuckoo-Shrikes? Here at once we find nests very similar to those of the King-Crows. How about the fabrics of those lovely little Shrikes, the Minivets? Discard from these a little of the outermost lichen and we have neat and tiny facsimiles of the nests of *Dicrurus*, *Chaptia*, and other forms of the *Dicruridæ*.

This suffices for the nests, and we may turn to the eggs. The Drongos lay eggs which are normally pink, either pale or warm in tint, and are spotted, speckled, and blotched to a variable extent with shades of red and brown. Many of them can be matched in all but size with those of *Lanius nigriceps*, the Black-headed Shrike, and others of the family. The little Bronzed Drongo lays eggs which are sometimes quite undistinguishable from those of Shrikes, and at other times are practically the same as the eggs of the Paradise Flycatcher and its nearest allies. Indeed, it would probably be possible to place on a table three clutches of eggs of the Paradise Fly-catcher (*Terpsiphone paradisea*), the Bronzed Drongo (*Chaptia ænea*), and the Bay-backed Shrike (*Lanius vittatus*) respectively, which no one but an expert could tell apart, for, not only in coloration are they similar, but in shape and texture as well.

The family *Certhiidæ*, which, as I have already said, forms the upper half of the Drongo "sandwich," contains the

Creepers and Wrens, and possibly has not many natural affinities to which any weight can be attached. The members lay white eggs, either plain or spotted with red, and one genus of the Wrens (*Anorthura*) varies in this respect.

There are, however, some very remarkable forms in this family which deserve notice, viz., *Salpornis*, *Tichodroma*, and *Sphenocichla*. *Salpornis* will probably prove to be a Creeper. To quote Oates: "But the most remarkable feature about *Salpornis* is that it builds a cup-shaped nest on a branch of a tree, thus deviating entirely from the habits of all other Creepers." The eggs, too, are said to be *greenish-white*, with a zone of blackish specks about the larger end, while some of the marks are sparsely found elsewhere.

Sphenocichla was until recently practically an unknown quantity, but I found its nest in 1899, and the eggs are typical Creepers' eggs, except that they are pure white and huge for the size of the birds.

The *Regulidæ* form a tiny family utilized by Oates for the reception of the Gold-crests, of which there are but four species, the common English form extending to India. Its nest and eggs are typically those of a Wren, and its position, as placed by Oates between the Wrens and Warblers, seems most appropriate.

When we come to the Warblers we are at once introduced to a great number of birds, on the whole far more intimately connected structurally than are the *Crateropodidæ*, yet showing infinite diversity in their nidification and oology, though, as a rule, the various genera lay eggs which may be assigned to their owners without much chance of failure.

To take these in order, we get such eggs as those laid by *Orthotomus*, *Cisticola*, *Franklinia*, *Scotocerca*, *Phyllergates*, and *Suya*, which are spotted (as a rule), and all shew a certain family resemblance, yet may be fairly picked out by their generic distinctions. Then we have the remarkable eggs of the *Horornis* group, including those of *Horeites* and *Neornis*, which may be roughly described as purplish or chocolate.

The *Phylloscopus* group, or "Willow-Warblers" as they are commonly called, may be said to include the beautiful little "Fly-catcher Warblers," all laying pure white or red-spotted eggs.

But besides these generic groups there are certain genera the members of which lay the most singularly contrasted eggs. Most prominent of all these is undoubtedly *Prinia*, which contains seven species, principally famous for having shorter tails in the summer than in the winter. Now of these seven forms two lay eggs which are coloured brilliant brick-red, while the other five lay blue or blue-green eggs, speckled, spotted, or blotched with dark colours.

The nests, however, are often facsimiles of one another, and the only characteristic at all noticeable in the birds themselves is that, whereas the two "red-egg-layers" are rather brightly-coloured, handsome birds, the others are very plain and inconspicuous.

This family also contains certain birds which lay eggs of a great variety of colours, notably *Orthotomus* and *Franklinia*, but more especially is this the case with the latter. In my own collection I have no less than thirteen varieties laid by *Franklinia*, including pure white and pure blue eggs, with all sorts of tints and spottings. But in no case are the markings bold, and I think that I could always tell an egg of this genus.

To go into greater detail about this family would take up too much space, so we will proceed to the Shrikes (*Laniidæ*), which comprise two subfamilies, viz., the true Shrikes (*Laniinæ*) and the Swallow-Shrikes (*Artaminæ*). It has already been noted that the Drongos should probably form a third subfamily (*Dicrurinæ*) of this group, so we will pass on without further remarks on this subject.

The genus *Lanius* is almost world-wide, and everywhere the egg of the Shrike bears its stamp as such. From this genus we pass, by a beautiful gradation in colouring, through the Wood-Shrikes, Cuckoo-Shrikes, and Minivets to the extreme outsider of the group, known as the Great Grey Cuckoo-Shrike or large Cuckoo-Shrike (*Graucalus macii*). This fine species makes a nest very much of the character of that of the Minivets, without the neatness and the lichen-adornments so much utilized by the latter birds. It lays pale greenish-grey or green eggs, very profusely covered with brown and purple markings of a longitudinal character, the general aspect of the egg being dark green.

The Swallow-Shrikes also lay eggs of a distinctly Shrike-like type, though they vary *inter se* very greatly.

The Orioles (*Oriolidæ*), which succeed the Shrikes, but with which they have little, if any, connexion, compose a very well-defined family. They all make similar nests, and lay eggs any one of which would practically serve for that of another species, though distinguishable in some cases by an expert.

After the Orioles, according to Oates, come the *Eulabetidæ* and *Sturnidæ*, the first containing the Grackles or Hill-Mynas, and the second the true Mynas and Starlings.

The only difference between the two families from an oologist's point of view is that one lays plain blue eggs and the other spotted. Even this, however, is a matter of degree, for the Indian Grackle sometimes lays eggs which are practically unspotted. Very likely these two groups should only be considered as subfamilies of the *Sturnidæ*, and, as already mentioned, *Psaroglossa* should be incorporated with the *Eulabetinæ*.

The Fly-catchers (*Musicapidæ*) are contained in 17 genera, and there is considerable diversity in their eggs, but a gradation, both of colour and tint, can be obtained from one extreme to the other.

Thus green olive-tinted examples in *Cyornis* may be graded into those of *Siphia*, and thence into those of *Stoparola*, *Niltava*, and finally into the pink-spotted eggs of the Paradise Fly-catchers. On the other hand, the specimens in *Cyornis* may be graded into those of *Alseonax*, *Culicicapa*, and *Rhipidura*, but the majority of the genera have the eggs fairly characteristic.

The *Turdidæ*, or Thrushes, constitute another very large family divided into various subfamilies, which may be designated Chats (*Saxicolinæ*), Redstarts (*Ruticillinæ*), True Thrushes (*Turdinæ*), Dippers or Water-Ouzels (*Cinclinæ*), and Hedge-Sparrows (*Accentorinæ*). Now the only subdivision which calls for remark is the last but one, viz., the Dippers. Everyone knows what a common Thrush's or Blackbird's egg is like, and to these two types all those of the normal *Turdidæ* bear some relation, the most aberrant being those of certain Bush-Chats and Fork-tails. The Dippers, however, lay pure white eggs, rather long in shape, and of a beautiful, smooth texture. This subfamily should probably be raised to the rank of a family. If we take the other subfamilies in detail we shall find that the only one calling for comment is the *Ruticillinæ*. Here we have a marvellous variety of colouring in the mottled eggs of the Fork-tails, the salmon-coloured of *Notodela,* the blue of *Tarsiger* and others, the olive-brown of the Nightingale, and the green of the Dayal and Shama.

Even here, however, the extremes have some connecting links with one another, and in no case do we find a white, or nearly white, egg.

The family *Ploceidæ* calls for a few remarks. All Indian species of both the subfamilies—Weaver-birds (*Ploceinæ*) and Munias (*Viduinæ*)—lay white eggs, except the genus *Ploceella,* which has them sometimes pure white, but more often greyish or purplish grey in ground-colour, more or less marked with dark shades of brown.

The family *Fringillidæ,* again, may be passed over without comment, the three subfamilies which it contains, viz., the Grosbeaks (*Coccothraustinæ*), the Finches (*Fringillinæ*), and the Buntings (*Emberizinæ*), all laying eggs very typical of their kind. Nevertheless, in the second subfamily they range from the sparsely-marked Goldfinch's egg to the densely-marked Sparrow's.

The Swallows (*Hirundinidæ*) call for no notice; they lay either white or more or less spotted eggs, while certain forms, such as the Cliff-Swallows, lay eggs which are sometimes of one description and sometimes of the other.

The Wagtails (*Motacillidæ*) and the Larks (*Alaudidæ*) shew their very close connexion with one another in their nidification quite as much as in other respects, and throughout the two families the resemblance of the eggs is very strong.

After these Mr. Oates places the Sun-birds or *Nectariniidæ*, which he divides into two subfamilies, the true Sun-birds (*Nectariinæ*) and the Spider-hunters (*Arachnotherinæ*).

In the first group we have birds laying white eggs more or less spotted and marked with grey and brown or reddish-brown. In *Æthopyga* the markings are usually sparse, but in some cases they are fairly dense. In *Arachnecthra* they become far more so; indeed some eggs in this genus look very much as if they were of an uniform grey-brown. Now, it is curious that these very nearly approach some eggs of *Arachnothera magna*, the Great Spider-hunter, a bird of the next subfamily; yet the members of that subfamily lay two distinct types of eggs, which have apparently no connexion one with another. The first type ranges in colour from a deep and absolutely uniform chocolate-brown to a less uniform freckly dark grey. This type therefore connects with the other subfamily through *Arachnecthra*. On the contrary, the little Spider-hunter (*Arachnothera longirostris*) lays white or pinkish eggs, faintly marked with darker reddish. This type connects with the previous subfamily through the most pink-tinted eggs of the genus *Æthopyga*. Thus we have the members of one subfamily with two totally different types of egg, forming the two extremes of a graded series laid by those of the previous subfamily. This fact, so far as I can ascertain, is quite unique in Indian oology.

The *Pittidæ*, or Pittas, lay typical eggs which cannot well be confounded with those of any other birds; there is little variation among them, and no remarks are necessary.

XXXI.—*The Cage-Birds of Calcutta.* By F. Finn, Deputy Superintendent, Indian Museum, Calcutta.

The taste for keeping pet birds is a very old one in India, exotic forms, such as Cockatoos, having been imported so long ago as the time of Jehangir, to judge from the representation of a yellow-crested species in a picture dating from the reign of that monarch which I had an opportunity of inspecting some time ago. And even to-day in Calcutta many birds are commonly to be seen in captivity hailing both from various parts of India itself and from other countries, although "the fancy" is no longer what it was, and both the demand and supply have dwindled away sadly. Nevertheless, enough birds are to be seen to arouse keen interest in English amateurs; and this is especially noticeable in the case of "soft-billed" or insectivorous and frugivorous forms, which are very extensively kept in India.

Calcutta rejoices in a very well-known bird-market in Tiretta Bazaar; and as this is within an easy walk of the Museum, I have long been in the habit of paying it frequent visits. One or two dealers in the Provision Bazaar also keep cage-birds; but Tiretta is the leading emporium for pets, always excepting Mr. W. Rutledge's establishment in South Road, Entally. There business has been carried on for nearly half a century, Mr. Rutledge dealing in living animals of all kinds; and many very choice birds pass through his hands, though he naturally does not trouble himself greatly about the commoner species. To him I have long been indebted for much information concerning birds and the methods pursued in keeping them.

Few birds seem to be kept or bred in aviaries here; small cages with a single inmate, or larger receptacles containing several, are chiefly in vogue; and as the objectionable custom of covering up birds kept for song is almost universally followed, it is not easy to determine the exact species of the occupants in many cases, though the note often affords a clue to the captive's identity. Cages for small singing-birds are usually oblong with a vaulted roof, and provided with two perches, or are square with a pyramidal top, containing only one perch; they are fitted with large comfortable handles, as it is the custom to take cage-birds out continually in order to give them fresh air.

Larger birds are kept in big wicker cages with a domed or hemispherical top, and Parrots in similar round domiciles of iron, or chained to iron swings. All native cages have a barred floor, instead of the drawer arrangement so familiar to home amateurs, but a mat is often provided to cover the bottom. Food and water-vessels are always placed inside, in my opinion very wisely. Sand is not given, except to Larks and Partridges.

"Soft-billed" birds are fed on the flour of gram, a kind of pulse, made up into a paste with ghee (clarified butter). This "*satoo*" seems to suit them very well; it is supplemented, in the case of purely insectivorous species, by a daily ration of live maggots and grasshoppers. The breeding of the former and the collection of the latter form the trade of a number of professional bird-feeders, who, on the receipt of a small monthly sum, will call daily at the houses of their patrons and supply insectivorous birds with everything needful. With the exception of Parrots, few seed-eating birds are kept simply as pets, and their treatment calls for no special remark.

Many birds are imported from China, and come over in excellent condition, being housed in strong but light oblong or square cages of split bamboo, well put together and fitted with trays. The insectivorous birds are fed on shelled millet and small insects, mixed together and given quite dry and plain; they thrive excellently on this diet, which is far better than the mess of "satoo" and repulsive maggots given here.

From the farther East come chiefly Lories and Cockatoos, fastened to perches by a wide ring of cocoa-nut shell, through a hole in the circumference of which the foot of the bird is slipped—I think by pressing the third toe back against the shank. Although so closely attached to the perch—which is merely passed through the ring that plays upon it—these birds appear to fare well and to keep in good condition. The Lories are fed upon rice-and-milk sop, which food is not given to any other birds, so far as I am aware.

It is a curious fact that, to all appearance, the species brought down from the hills often stand the Calcutta climate nearly or quite as well as those which naturally inhabit warm countries. The same remark applies to the few European kinds imported; some, indeed, of these temperate-climate species seem to feel the heat *less* than denizens of the tropics.

I am very glad to say that, on the whole, the captives are well treated here. The custom above alluded to, of wrapping up the cages in cloths, is certainly regrettable, but the general condition of the birds shows that they are well looked after. Nor are they confined in such a miserably small space as is sometimes the case in Europe, notably with Linnets in England.

The importation of foreign birds is not likely, in my opinion, to have any great influence on the Indian fauna. Of course many escape, but these, if they evade the numerous Crows, ever watchful for a stranger or a weakling, are not numerous enough to establish themselves, even if the climate prove suitable for their propagation. I have some reason, however, for thinking that the Java Sparrow (*Munia oryzivora*) is becoming established here, as in so many other places. But this need be no matter for regret, as the species is one of exceptional beauty, and, though it is undoubtedly destructive in some places, it has never become a pest in India, where it has existed in a wild state ever since Jerdon's time. I therefore feel no shame in confessing to having liberated at different times some scores of individuals, in the hope of giving it a footing as a wild species in this part of the country; especially since, being so numerously imported, so often escaping, and being so well able to look after itself, it was likely to take up such a position without deliberate assistance on the part of anyone.

I will now proceed to treat of the various species of cage-birds to be met with here under their families as given in the Bird-volumes of the 'Fauna of British India,' the scientific nomenclature of which I shall employ, interpolating the exotic forms under the names employed in the British Museum Catalogue of Birds.

Family CORVIDÆ.

Considering the popularity of the members of the Crow-tribe in England, I was rather surprised to find that in

Calcutta they did not commonly figure as pet birds. The Magpie (*Pica rustica*) may, however, occasionally be met with, usually as a Chinese importation, and the common Indian Tree-Pie (*Dendrocitta rufa*) is often to be observed in the Bazaar. A few Himalayan forms are also pretty regularly brought down—the two species of *Urocissa* (most often *U. occipitalis*), the beautiful *Cissa sinensis*, *Garrulus lanceolatus*, and sometimes *G. bispecularis*; while Mr. Rutledge occasionally gets a few Red-billed Choughs (*Fregilus graculus*), which actually do not seem to suffer from the heat. I noticed that these birds looked distinctly larger than the European specimens I used to see at the London Zoological Gardens, and had deeper red bills and feet.

Of exotic Corvidæ I have seen at Mr. Rutledge's establishment *Corvus australis* and the Chinese *Corvus torquatus*, while quite lately he had a fine specimen of the Brazilian *Cyanocorax cyanopogon*.

Among the Tits the only species I have met with in confinement is *Machlolophus xanthogenys*, a few individuals which had been brought to Calcutta having done very well.

Family PARADISEIDÆ.

Birds of Paradise are of course always scarce and very expensive, but a few males of the two ordinary yellow-plumed species (*Paradisea apoda* and *P. minor*) have appeared for sale during the six years I have spent in Calcutta. They thrive well in confinement, and are much thought of by the natives, who identify them with the legendary *Huma*, which never alights, and confers royalty on whomsoever it chances to overshadow in its flight! Mr. Rutledge tells me that the Ameer sent a man from Cabul on purpose to inspect the first specimen he obtained, and to report on its identity with the bird of tradition.

Family CRATEROPODIDÆ.

The Babblers and Bulbuls are particularly suitable for cage-birds, as they bear captivity remarkably well, and have many recommendations as pets, especially in the case of the former.

Most esteemed, perhaps, is the Chinese Jay-Thrush (*Dryonastes sinensis*), which is only known here as an mported bird and under its Chinese name of *Peko*. It is a very fine songster and an excellent mimic. A few arrive from time to time and find a ready sale. I know of a very good specimen which is at least 14 years old and certainly shows no signs of age. Another Chinese bird of this type, and similarly imported in small numbers, is the Huamei (*Trochalöpterum canorum*), also much prized as a songster.

Some common Indian Jay-Thrushes, *Garrulax leucolophus, G. albigularis, G. pectoralis, G. moniliger, Grammatoptila striata, Ianthocincla rufigularis*, and one or two others, are pretty regularly brought down in the winter, especially the first-named, which is in some demand for export.

Other Babblers which also arrive in consignments from the hills are *Pomatorhinus schisticeps, P. erythrogenys*, and *Lioptila capistrata*, and, among the smaller species, *Mesia argentauris, Siva cyanuroptera*, and *Yuhina nigrimentum*. None of these, however, come into the market in any quantity.

The charming little "Pekin Robin" (*Liothrix lutea*) is numerously imported in winter—generally from China—and hence is almost always to be procured. *Zosterops simplex* is also a very common captive, and attempts are sometimes made by Bazaar dealers to pass it off as a "Humming-bird"!

Chloropsis aurifrons, well known as the *Harewa*, is often on view, and is one of the most delightful of cage-birds, being easily kept, and possessing the recommendation of being a very clever mimic as well as very ornamental. If hand-reared, it is very tame; but individuals vary much in temper, and some are quite impossible companions for any small bird, while others are perfectly peaceable. As the sexes are so much alike in this species, I have not been able to discover the reason of this difference of disposition, whether it be personal or sexual. The fine *Chloropsis hardwickii* is comparatively scarce, and *C. jerdoni* is seldom to be had.

The species of *Chloropsis* are often called Green Bulbuls, but they cannot be placed far from *Ægithina tiphia*, obviously a small Babbler, which is sometimes kept here (but rarely, being a delicate species). It is locally known as "Tofik." Another small Timeliine form occasionally on sale is the Gulab-Chasm (red-eye) (*Pyctorhis sinensis*)—a most amusing little bird, very impudent, and mischievous when in company with others.

Of the true Bulbuls, the common *Molpastes bengalensis* is by far the most popular captive. It is not so often caged, however, as tethered to an iron T-shaped perch padded with cloth, the cord being fastened to a soft string round its body. This is to further its employment as a fighting-bird, that being the purpose for which it is commonly kept. Two individuals are made hungry, and then their jealousy is excited by offering food to one only, which of course provokes a fight. The sport is carried on during the winter, after which the birds are released, with the exception of such as have proved worthy of maintenance for the future.

This is the only species employed in such a way, but several other Bulbuls may be seen caged, especially the almost equally abundant *Otocompsa emeria*. *O. flaviventris* comes to hand occasionally in small numbers, and sometimes considerable supplies of *Molpastes leucotis*, *M. leucogenys*, and the Chinese *Pycnonotus sinensis* arrive, but these cannot be reckoned on. A few examples of *Hypsipetes psaroides*, *Hemixus flavala*, and *H. macclellandi* have been brought down in the winter of late years.

Before leaving the Crateropodidæ, I should mention that a few specimens of the splendid *Myiophoneus temmincki* have passed through Mr. Rutledge's hands, and that lately my friend Mr. E. W. Harper secured from him a fine imported specimen of the Chinese *M. cæruleus*, which he has sent to the London Zoological Gardens. But undoubtedly the members of this fine genus are wrongly placed in this family, being certainly true Thrushes. The distinction between them and the Babblers is perfectly obvious to any bird-keeper or field-naturalist, however hard it may be to make out from skins.

Family DICRURIDÆ.

Only one bird of this family is commonly kept here—the Bhimraj (*Dissemurus paradiseus*); but few specimens are brought in, and these are hand-reared birds in poor condition, which seldom live long, as they require—but do not usually get—a very large cage. This species is, as Jerdon correctly remarks, an excellent mimic. I have even heard that it will occasionally talk, and I have myself known one individual that could imitate the song of a canary to perfection, and also mew like a cat; while another with which I am at present acquainted not only possesses the latter accomplishment, but whistles two or three lines of a song with absolute accuracy of execution.

The Kesraj (*Chibia hottentotta*) is sometimes on sale, but is not popular, so far as I know; the Dhouli (*Dicrurus cærulescens*) is occasionally to be procured, and is said to whistle very well.

Family LANIIDÆ.

The Indian members of this family are hardly ever caged here, though some consignments of Minivets (*Pericrocotus speciosus* and *P. brevirostris*) have arrived but have not thriven.

The Australian Crow-Shrikes or Magpies (*Gymnorhina leuconota* and *G. tibicen*) are, however, not unfrequently imported; they thrive well and fetch good prices on account of their well-known whistling and talking abilities. I lately saw a specimen in the possession of Mr. Rutledge which had pale grey on one side of the back and black on the other this was, I presume, a hybrid between the two species.

Family ORIOLIDÆ.

Orioles are not generally kept, and the few that are to be seen do not thrive well, especially the common *Oriolus melanocephalus*. *O. traillii* bears confinement far better than the yellow species, being less restless. It also looks very different from them in life, as it keeps the head-feathers erect, and has a more upright carriage, in addition to its striking light-yellow irides. The eyes of young birds are, however, dark brown.

Family EULABETIDÆ.

The common Hill- or Talking-Mynah (*Eulabes intermedia*) is one of the best-known cage-birds in Calcutta, being brought into the Bazaar by scores at a time, which include both adult and newly-fledged specimens. As everyone knows, some of these birds are very fine talkers, but I have only heard one that was really good, whose imitation of the human voice was perfect. They often prove but short-lived pets, and I am inclined to think that the "*satoo*"-diet is too rich for these fruit-eating birds, as they usually seem to die in fits, and those I have handled have been very plump and heavy and were probably unduly fat. Recently I saw one with a nearly white iris, the only such specimen I have ever observed among a great number of individuals from India and the Andamans. The smaller Talking-Mynah (*E. religiosa*) is not often caged here, and I have seen no other bird of this family in captivity.

Family STURNIDÆ.

As might be expected where the family is so well represented, the various Starlings and Mynahs are often seen caged. Much the commonest of them is the ordinary *Acridotheres tristis*, which is even more commonly kept than *Eulabes intermedia*, and sometimes talks nearly or quite as well. It also becomes so tame that it may be allowed full liberty. I have seen several more or less perfect albinos of this species in confinement; two very curious specimens are at present in the Calcutta Zoological Garden, for which I procured them from Mr. Rutledge. Both were white when he first obtained them, but one has now completely assumed the normal coloration of the species, and the other has partly done so. A similar phenomenon occurred with a common Babbler (*Crateropus canorus*) recently in his possession, which unfortunately escaped.

Another common Starling (*Sturnopastor contra*) is frequently seen caged, and from its very sweet liquid notes is certainly better suited than any other of its family for a pet. It does not appear to have been noticed that the coloration of the soft parts of the young of this species is quite different from that of the adult, the bill and legs being black, with the inside of the former orange, while in old birds the legs are white and the bill orange and white, with the inside of the mouth black.

All the other common Indian Starlings may be seen at times caged in Calcutta, namely :—*Acridotheres ginginianus*, *Æthiopsar fuscus*, *Sturnus menzbieri*, *Pastor roseus*, *Temenuchus pagodarum*, and *Sturnia malabarica*. The last two are known as *Pawi*, and this title is shared by *Sturnia andamanensis*, which is occasionally imported and is called "*Sada Pawi*," *Sada* meaning "white." *Graculipica nigricollis* is also brought in small numbers from China. The male is a most amusing bird, with his habit of erecting his crest and bowing and muttering to visitors.

Family MUSCICAPIDÆ.

The only Flycatchers I have seen in captivity here are *Stoparola melanops* and *Niltava sundara*, of which a few have been brought down from the North and have thriven very well on the *satoo*-and-maggot regime.

Family TURDIDÆ.

As in other countries, the birds of this family are popular captives here. In fact, if a census of the cage-birds of Calcutta were taken, I should expect the Shama (*Cittocincla macrura*) to come very near the head of the list, as it is extensively kept, and thoroughly deserves its popularity on account of its splendid song. Indeed, after the common Green Parrot, it might, I think, be called the characteristic cage-bird here. Many individuals are also sent to Europe, where the species is yearly becoming better appreciated. Both wild-caught birds and hand-reared fledglings, still in the mottled plumage of immaturity, appear in the shops of the dealers, while the great majority of the birds exposed for sale are males. A few females may, however, be seen, being presumably hand-reared birds, whose sex could not be determined at first. These have given me the opportunity of observing that this favourite songster is a most pugnacious bird; the cocks will at once fight if put together, and so will the hens. At the same time, old wild-caught cocks and young spotted birds arrive, in many cases at least, in cages containing half a dozen or more, though Shamas are more usually brought in long wicker-cages divided by bars into separate partitions for the several inmates.

Other small Turdidæ not uncommonly kept are the "Dhyal" (*Copsychus saularis*) and the "Pidha" (*Pratincola caprata*). *Chimarrhornis leucocephala* is also occasionally brought down from the hills in winter. The "Bulbul bostha," or true Eastern Nightingale (*Daulias golzi*), is sparingly imported at this season, the birds fetching high prices—from fifty to two hundred rupees. I am told that a man will come all the way from Cabul with a few of these much-esteemed birds as his main venture.

Of the large Indian Turdidæ the only species at all frequent in captivity here are the "Kastura" (*Turdus boulboul*) and the "Dama" (*Geocichla citrina*), and I have not seen many even of these. A few English Song-Thrushes (*Turdus musicus*) have been imported, and do fairly well, but I have noticed that they are very liable to an overgrowth of the scaly covering of the feet. A silly attempt is now being made to introduce the Song-Thrush and Blackbird into Darjeeling, which is already well stocked with more attractive species of birds, especially *Lioptila capistrata* and *Liothrix lutea*.

Family PLOCEIDÆ.

The typical Weavers of the genus *Ploceus* all occur commonly in the Bazaar, except the true *P. megarhynchus* (see Ibis, 1901, p. 29), which is unknown to the dealers. *P. atrigula* (*P. megarhynchus* of the 'Fauna of British India') is often brought in as a young bird, and evidently breeds near here. *P. baya* is only known as a bird brought down from Lucknow, most of the specimens being males. Many of that sex of *P. atrigula* show a few yellow feathers on the breast when in full plumage.

Foudia madagascariensis used to be occasionally imported in very small numbers, but I have not seen any lately.

Of the small Munias and Waxbills, *Sporæginthus amandava, Munia atricapilla, Uroloncha punctulata*, and *U. malabarica* are all very common, as might be expected. *Stictospiza formosa, Munia malacca*, and *Uroloncha striata* are much less often seen, but may be obtained now and then. Intermediate forms between *M. malacca* and *M. atricapilla* often occur, and are doubtless hybrids. Wild specimens of *Uroloncha acuticauda* are rarely seen, but the domesticated Japanese race (known to home amateurs as the "Bengalee") is constantly present in the Bazaar, in one or other of its three forms—the brown-and-white (grading completely into the wild type), the fawn-and-white, and the pure white, the last being the rarest. It is somewhat curious that no form exists, apparently, intermediate between the fawn-and-white and brown-and-white types, but a similar broad distinction exists between the cinnamon and green forms of the domestic Canary.

Of the small exotic Ploceidæ, *Munia maja, M. castaneithorax, Tæniopygia castanotis*, and *Estrelda astrild* are the most common; but *Poëphila mirabilis, P. gouldiæ, P. acuticauda*, and *P. cincta* have been imported, the two former most frequently and the latter only quite recently, together with *Ædemosyne modesta*.

Erythrura prasina, though occurring in our empire, is of course only known here as an imported bird, and does not usually do well.

I have in my prefatory remarks already alluded to the Java Sparrow as a commonly introduced bird, and now need only mention that the more or less pure white domestic form from Japan is even more constantly an occupant of the dealers' cages, presumably because it sells at a much higher price, and is therefore not so readily disposed of.

Family FRINGILLIDÆ.

The ubiquitous Canary is, of course, a very common cage-bird in Calcutta, and will probably tend to displace many native species in the affections of the people. Most of those sold here come from China; they are small birds, generally of the pale whitish-yellow tint known to fanciers in England as "buff," green or pied birds being relatively few, and full bright yellow and cinnamon being rarely if ever seen.

I once saw a green bird (not a hybrid of any sort) marked with yellow on the quills and tail, like a Greenfinch. The note of these Chinese Canaries is very soft and pleasant, and they generally resemble the German type of bird. Maltese and a few English Canaries are also imported, the latter fetching three or four times the price of Chinese forms.

The only Indian Finch commonly kept as a songster is the "Tuti" (*Carpodacus erythrinus*); this of course loses the red colour after moulting in confinement, like other carmine-tinted Finches. Several other species, however, appear in the Bazaar, generally to form part of mixed collections, viz.:—*Emberiza luteola, Hypacanthis spinoides,* and, less commonly, *Emberiza melanocephala, E. aureola, Melophus melanicterus, Gymnorhis flavicollis,* and *Carduelis caniceps.* A large consignment of the last-named came down during the past winter, but the birds did not thrive as a rule. A few individuals of the Eastern form of Linnet (*Acanthis fringillirostris*) have also been brought in, and I noted that the males, when kept over the moult, lost the red, as the home Linnet does. I have also seen a few specimens of *Metoponia pusilla.*

Of exotic Fringillidæ, *Chloris sinica* is the most common, except of course the Canary; a good many examples of *Eophona melanura* used to be imported, but they were greatly subject to disease of the feet and have not been very popular. The European Goldfinch (*Carduelis elegans*) is generally to be found, but comes in very small numbers; it does not feel the heat at all, nor does it gasp, as many native species do. Bullfinches (*Pyrrhula europæa* and *P. major*) may sometimes be had, as may also the Brambling (*Fringilla* *montifringilla*), the specimens of this bird being imported. A species of *Serinus*—I think *S. icterus*—is not uncommon. American Cardinals (*Cardinalis virginianus* and *Paroaria cucullata*) have been brought here and have done well, but have not sold very readily.

Family ALAUDIDÆ.

Larks are popular here as cage-birds, especially the "Chendool" (*Galerita cristata*) and the "Agheens" (*Mirafra*). *Melanocorypha bimaculata* is also brought down to Calcutta in numbers at the close of the cold season, while a few specimens of *M. mongolica* may generally be seen, as it is pretty regularly imported. Another Chinese Lark is often to be noticed, *Alauda gulgula*, I think—at any rate it differs, like that bird, from *A. arvensis* in its smaller size, shorter wings and tail, and larger feet. These birds are expensive, costing between ten and twenty rupees, although not apparently different from Indian specimens of *A. gulgula*, which I have never seen caged. But the custom of wrapping up the cages has limited my knowledge of Larks to a very great extent.

Family NECTARINIIDÆ.

Both *Arachnechthra asiatica* and *A. zeylonica* may be occasionally seen at the dealers' establishments, but can hardly be expected to thrive. Nevertheless, I have known the latter kept by Europeans for many months, and I deposited one of the former safely in the London Zoological Gardens in 1897, although it was in poor condition and did not live long. Mr. Rutledge informs me, however, that this species is kept in some places as a song-bird, so that certain natives must understand how to treat it.

Family DICÆIDÆ.

A few examples of *Dicæum cruentatum* are occasionally on sale, but these birds, though they will eat bananas greedily, are not easy to keep. This is a great pity, as they are not only very pretty, but quite the tamest and most fearless of any small birds I know.

Family PITTIDÆ.

A few specimens of *Pitta brachyura*—hand-reared birds—occasionally come into Mr. Rutledge's hands, but this species is certainly not common in cages. Although not a songster, it makes a very nice pet, owing to its tameness and amusing gestures.

Family PICIDÆ.

The only Woodpecker caged here, and that but rarely, is the common *Brachypternus aurantius,* hand-reared specimens of which get very tame and thrive well in confinement. From the readiness with which they partake of plantains, I fancy that the species must be naturally more or less of a fruit-eater. The outer hind toe (third toe) is certainly reversible in this species—and, indeed, in some other Woodpeckers that I have noticed—for it often points laterally forwards when the bird is moving about in a cage. Nestlings of this species have a warty pad on the hough, and shuffle about on it without the aid of the toes.

Family CAPITONIDÆ.

I have more than once seen a statement in print that Barbets do not thrive well in captivity; but this is quite a mistake, at all events as regards most Indian forms. The first Barbet I ever saw alive was an example of *Cyanops asiatica,* which lived for at least six years in the London Zoological Society's Parrot-house. This species is the easiest of all to keep, both hand-reared and wild-caught birds being exposed for sale in the Tiretta Bazaar, where some may practically always be found. Several individuals may safely be placed together in one cage, which is not the case with other Barbets, and a great many must reach Europe; indeed, the bird is only kept for export, and is certainly not unfrequently on sale in England. A few specimens of *Megalæma marshallorum* and of *Thereiceryx zeylonicus* are occasionally seen here, and *M. virens* sometimes arrives from China. The Coppersmith (*Xantholæma hæmatocephala*) is often brought in to the dealers, but never lives long, as they *will* feed it on "satoo," a diet which kills it in a very few days. Yet on bread-and-milk and fruit, or the latter only, it lives well.

Family CUCULIDÆ.

The male Koël (*Eudynamis honorata*) is a very popular pet with natives, and is always on sale here. Many examples are reared from the nestling stage by hand. The young birds that I have observed do not seem to bear out the theory that both sexes are at first entirely black, and that the female assumes her proper livery later. Some young males are quite black, and others are black sparsely spotted with buff. The young females are much like the adults of that sex, but have the upper half of the head and the nape black. In all young birds the bill is black, not green, as in the old.

The only other Cuckoo I have met with commonly in cages is the "Popiya," or Brain-fever-bird (*Hierococcyx varius*), the note of which is as much esteemed by natives as it is disliked by Europeans. It does not keep its plumage in such good condition as the Koël, which seems to do very well as a cage-bird. The Crow-Pheasant (*Centropus sinensis*) is often brought in, not as a pet, but on account of some fancied medicinal virtue. I have noticed two types of young Crow-Pheasants, which never seem to occur in one brood, at least they are not sent in together. One is a large barred bird, usually taken as the typical young of the species, which is very easy to tame. The other is smaller, especially as regards the bill and feet, and shows no trace of bars, but is a dull edition of the adult. When full-fledged it is wilder than the first, has a longer tail, and is inclined to hop as well as walk. It also moults much later. This is as much as I have yet been able to make out from studying the live birds, and I am not sure whether these uniformly-coloured young are merely the males, as Jerdon says, or a distinct race, or even species. Against the latter view, and tending to prove the existence of much variation, may be instanced the fact that we have in the Indian Museum the skin of a nestling which is in *perfectly bright adult plumage*, whereas the young birds of the second type mentioned above resemble those of *C. chlororhynchus* as figured in Captain V. Legge's 'Birds of Ceylon,' or may be even duller and darker. All the young birds I have seen have grey eyes and black bills, flesh-coloured at the base in the case of the barred specimens.

PSITTACI.

The Parrots are of course very important in the present connexion, though many of them are not cage-birds in the literal sense, for they are quite as often chained, as mentioned above; this is the case even with Parrakeets and Lories. Many foreign species are imported, and some very rare forms occasionally occur; but, not being specially interested in the group, I have not kept any record of these, and must confine myself to the more usual importations. But I would strongly advise any member of the B. O. U. who likes rare Parrots, or wants specimens of them, not to neglect examining the Calcutta dealers' stocks, if he ever has the opportunity of so doing.

Family LORIIDÆ.

The justice of what I have remarked above is evidenced by the fact that *Trichoglossus forsteni*, which was not even in the British Museum ten years ago, and was only received by the London Zoological Society in 1896, has been, at any rate since I came here in 1894, quite the most commonly imported Lory; indeed, I am not sure that it has not been brought in more numerously than any other exotic Parrot. It thrives very well in captivity, and has bred in the Calcutta Zoological Garden. *Trichoglossus swainsoni* and *T. ornatus* are also not uncommon. Of the other Lories, *Eos riciniata* is, perhaps, the most abundant; but *Lorius garrulus* is also plentiful, *L. domicella* far from rare, and *L. lory* often to be seen.

Family CACATUIDÆ.

The commonest Cockatoos imported are *Cacatua sulphurea* and *C. roseicapilla*, which come in large numbers and are sold for a few rupees only. *C. galerita* is also common, *C. alba* much less so, and *C. leadbeateri* rather rare. The great *C. moluccensis* is always on sale, though not imported in any very great quantity at one time, each bird being anchored in the manner above described to an L-shaped perch of wood, and so kept unless transferred to a swing. I have particularly noticed the great tameness and intelligence of these birds. All of them are eager for notice, and they will frequently invite me to scratch their heads by beginning to ruffle their feathers with one foot—in fact, will make a sign of their wishes. The only other species I have ever seen do this was a Red Macaw lately in Mr. Rutledge's possession; but the action is so universal with these Cockatoos that it may fairly be put down as a characteristic piece of intelligence, though their tameness is, no doubt, due to their being hand-reared.

The Cockateel (*Calopsittacus novæ-hollandiæ*) is often imported and generally to be bought; it has bred in the Zoological Garden here. I have noticed that this bird's plumage is remarkably impervious to wet; water poured on it glides off as from a Duck's back.

Family Psittacidæ.

The cage-bird of India *par excellence*, and one of the longest- and best-known anywhere, is of course the familiar Ring-Parrakeet (*Palæornis torquatus*), which is popular both with natives and Europeans, and may be met with, chained or caged, in almost every street. Hundreds of fledged and unfledged young, and of wild-caught adults of both sexes, come into the hands of the dealers. Many of the latter are more or less heavily splashed with yellow; while perfect *lutinos* are far from rare and are extremely beautiful birds. The males in these cases retain the pink neck-ring, and the bill is always red. Such birds fetch very high prices—about eighty rupees—and consequently seldom reach Europe, though some have been exhibited in the London Parrot-house. No attempt has, however, been made to breed the variety in captivity, and the dealers depend for their supply on chance "sports." Yet the form probably has the elements of permanence in it, for Mr. Rutledge assures me that he knows of a case of a pair of normally-coloured birds which always nest in the same tree and always produce a yellow brood, the young being eagerly watched until fit to be taken. Lately I have seen a particularly curious *semi-lutino*, not splashed, but of a shade midway between green and yellow throughout.

Nearly as numerous as the common Parrakeet is the larger "Rock-Parrot" (*P. nepalensis*), but most, if not all, of the examples are, I think, brought in as young birds. In the Tiretta Bazaar there are at the time of writing (February) a good many examples of this species still so young as to show the dark irides which when immature this and the common Ring-neck exhibit. I have never seen a *lutino* of this large Parrakeet.

The "Blossom-head" (*P. cyanocephalus*) is common in the Bazaar, but is not so popular a cage-bird as the Ring-neck. The Eastern form (*P. rosa*) is also often to be seen. Another common *Palæornis* is *P. fasciatus*, but only quite lately have *P. magnirostris*, *P. schisticeps*, and *P. columboides* appeared here, so far as I am aware, and then there were only a few individuals, except of the last species, of which a good many pairs arrived, and some are still on sale. *P. finschi* I have seen only once; the specimen was secured for the London Zoological Gardens by Mr. Harper.

The common little Lorikeet is often to be met with, and the Malayan *Loriculus galgulus* is frequently imported, both being in favour as inmates of minor aviaries. I have only once seen *L. indicus*. The only small foreign Parrot numerously imported besides *L. galgulus* is the well-known Budgerigar (*Melopsittacus undulatus*), which thrives and breeds as well here as elsewhere. Mr. Rutledge has seen escaped birds nesting in the open, but I am not aware that the species has established itself. I have never seen or heard of *lutinos* of this species in India, though in Europe such are not uncommon and are advertised for sale.

Several of the larger Australian Parrakeets are imported, *Platycercus eximius* being much the commonest. *P. elegans*, *Polytelis barrabandi*, and *P. melanura* are brought in small numbers, as are also *Ptistes erythropterus*, *Aprosmictus cyanopygius*, and some form of *Barnardius*.

More constantly present than any Australian Parrots, except the Cockatoos, are the common *Eclecti*, especially *E. roratus*. *E. pectoralis*, and very probably other species, occur, but I cannot be certain about this under the circumstances. A species of *Tanygnathus* is also often imported.

The African Grey Parrot (*Psittacus erithacus*) not uncommonly appears, generally in good health and condition, unlike the majority of its unhappy fellows in England. *Coracopsis vasa* may also sometimes be procured.

American Parrots, as might be expected, are not often to be seen, but the common Blue-fronted Amazon (*Chrysotis amazonica*) is not very rare, and a few Macaws (*Ara macao*, *A. chloroptera*, and *A. ararauna*) are on sale from time to time, being highly valued by the natives. Mr. Rutledge knew of an individual of the red-and-blue species being kept for no less than three generations in a native family. I once saw two most beautiful dark-blue, red-vented Parrots, somewhat similar in size and style to the common African Grey Parrot, which I took to be examples of *Pionus chalcopterus*, a species I never remember to have seen elsewhere.

COLUMBÆ.

Almost the only other cage-birds remaining to be dealt with are the various Doves and Pigeons, some of which are, however, more properly aviary or menagerie birds. Such is *Goura coronata*, which is imported quite numerously at times, and has been bred by a native amateur, according to information given me by Mr. Rutledge.

The only species of this group really common and popular as a cage-pet is the well-known domestic Turtle-Dove, which is found both in the ordinary cream-coloured form with black half-collar, and in more or less completely albino varieties. It is certainly not identical with the wild *Turtur risorius*, so far as the note goes, this being a very marked point of specific difference in all the ring-necked species of *Turtur* I have seen alive.

The common wild Turtle-Doves are frequently to be seen for sale—*Turtur suratensis*, *T. cambayensis*, *T. risorius*, *T. orientalis*, and *T. tranquebaricus*. Mr. Rutledge once gave me a very peculiar albinoid cream-coloured male of the last species. *Chalcophaps indica* and *Geopelia striata* are also often to be had, and *Calœnas nicobarica* is pretty commonly imported.

Of the Fruit-Pigeons, the "Hurrial" (*Crocopus phœnicopterus*) is generally for sale in the Bazaar, and, more rarely, one may meet with the "Kokla" (*Sphenocercus sphenurus*), which, although much esteemed in some parts, is apparently not often kept in Calcutta. *Osmotreron bicincta* is commoner. *Carpophaga ænea* and *Myristicivora luctuosa* are sometimes imported in considerable numbers, but cannot be called abundant. On a few occasions recently Mr. Rutledge has procured the lovely *Ptilopus jambu*, and I once saw a splendid *Butreron capellii* in his possession. Fruit-Pigeons are quite easy to keep, as they live well on any *soft* vegetable food, such as *satoo*-paste or boiled rice, and I wonder that the home dealers do not take more trouble to introduce these most exquisitely coloured birds.

Of foreign Pigeons, the most frequently imported are *Ocyphaps lophotes* and *Phlogœnas luzonica*, not to mention the great Ground-Pigeon alluded to above. Other species occasionally occur, such as *Leucosarcia picata*, *Phaps chalcoptera*, and *Geopelia cuneata*, while a short time ago a good many *Turtur chinensis* and *T. bitorquatus* were imported, especially the latter, which proved quite a drug in the market. Before leaving the Pigeons, I ought to record the curious fact that the Alpine *Columba leuconota*, which Mr. Rutledge sometimes obtains, bears the heat perfectly well, and even shows a desire to breed. As its note has apparently not been recorded, I may mention that it is not a coo, but a repeated croak, not unlike a hiccough, and, much as the bird resembles the domestic Pigeon, I have never seen it sweep the ground with its tail when courting, but rather raise it.

GALLINÆ.

The *Phasianidæ* are usually regarded in the light of aviary birds, but as one of them is among the commonest species kept in confinement here, the family demands some notice.

Family PHASIANIDÆ.

The Grey Partridge (*Francolinus pondicerianus*) is very widely kept for fighting, and in consequence is one of the birds most commonly seen in cages. Those used are small, with the interstices of the pyramidal top filled in many cases with string netting, to avoid injury to the bird's head. These Partridges, however, become so tame that they can be let out for a run, and I have seen one following its owner over the grass like a little dog.

The Common and Rain-Quails (*Coturnix communis* and *C. coromandelica*) are also occasionally kept in cages for fighting. The Pheasants, which are brought down from the hills for exportation, hardly come within the scope of the present paper, but it may perhaps be allowable to mention a few birds of this family which have long been imported for ornamental purposes, although they cannot be called cage-birds. These are the Java Peacock (*Pavo muticus*) and the white and pied forms of the common *P. cristatus*, together with the "Japan Peacock" (*P. nigripennis*). Mr. Rutledge tells me that this form really does occur in Japan to his positive knowledge (no doubt introduced), and there is certainly a Japanese specimen of Temminck's in the Paris Museum. The Ring-necked Pheasant (*Phasianus torquatus*) and Silver Pheasant (*Gennæus nycthemerus*) are frequently brought over from China, as is the Golden Pheasant (*Chrysolophus pictus*), the male of which often has a hen of *P. torquatus* assigned to him as a companion. The male Golden Pheasant occurs in the old picture to which I alluded at the commencement of the present paper, so that it may fairly claim to have been one of the earliest fancy birds exported from its own country.

XXXII.—*On some rare or unfigured Palæarctic Birds' Eggs.*

By H. E. DRESSER.

(Plate IX.)

HAVING undertaken to write some papers on Birds' eggs for 'The Ibis,' I feel that I cannot do better than follow in the footsteps of Professor Newton, who for some years past has contributed articles to the 'Proceedings' of the Zoological Society on "New or Rare Birds' Eggs," the last of which appeared in 1897 (P. Z. S. 1897, p. 890, pl. li.); but I propose to confine myself exclusively to the eggs of Palæarctic species, and especially to such as have not yet been figured, or have been inadequately delineated. I will commence with the Thrushes, of several of which the breeding-habits and eggs have only been described at a comparatively recent date.

TURDUS DUBIUS Bechst. (*T. fuscatus* Pall.). Dusky Thrush. (Pl. IX. figs. 1–4.)

The first notice that I can find respecting the nidification of the present species appears to be that of Dr. Dybowski, who states (J. f. O. 1872, p. 437) that it "nests on the Angara in the vicinity of Ussola," but he does not appear to have obtained its eggs. The late Mr. Seebohm, when he visited the Yenesei in 1877, found a nest of this Thrush, but it contained young birds; and Mr. H. L. Popham appears to have been the first to procure authenticated eggs, when in 1875 he took several nests on the Yenesei River, shooting the parent birds to ensure identification. Again in 1897 he took five nests at Doodinka (lat. 69½° N.). These, he writes (Ibis, 1898, p. 493), "were generally placed in small isolated trees, and rarely on the ground, though none were more than two feet from it." The nest he describes as being exactly like that of a Fieldfare, with a lining of mud, and a final bedding of dry grass. The eggs vary from the ordinary Blackbird type to that of the Fieldfare, the size being about the same as in *T. atrigularis*.

TURDUS OBSCURUS Gmel. Pale Thrush. (Pl. IX. figs. 5–8.)

The first authentic description of the nesting-habits, nest and eggs of this Thrush appears to be that of Dr. Dybowski

(J. f. O. 1872, p. 441), which I translated *in extenso* in my 'Birds of Europe' in 1878. There I also gave some notes from the writings of the late Mr. Seebohm, who found it breeding on the Yenesei in 1877, and took his first nest, containing five eggs, on the 27th of June at Koorayika. Mr. Popham also took three nests at Inbatskaya (lat. 64° N.) on the Yenesei in 1897, and has given (Ibis, 1898, p. 493) full particulars respecting the same.

The nest of this species is either placed near the ground (Mr. Popham found one on a stump about four feet above it) or on a branch, or near the main stem of a larch or fir-tree at a height of from 15 to 20 feet, and is, like that of a Fieldfare, strongly built, and lined with fine grass and dry larch-needles. The number of eggs is four or five, seldom six, and they are smaller than any of the others here described, averaging 1·06 by 0·75 in. They are also rather less subject to variation, and are somewhat darker and more blue in ground-colour. One clutch is rather of the Blackbird type, but the rest are more or less spotted and blotched with rusty red. A clutch of four eggs from Darasun in Dauria, received from Dr. Dybowski, closely resemble some of those taken by Mr. Popham on the Yenesei, both in size and coloration, and one of these I have figured (see fig. 8) for comparison.

TURDUS ATRIGULARIS Temm. Black-throated Thrush. (Pl. IX. figs. 9–12.)

Herr Tancré of Anclam received eggs, stated to belong to this Thrush, from his collectors in the Altai Mountains, but they do not appear to have been properly identified; and the first authenticated eggs were, I believe, those taken by Mr. Popham at Inbatskaya on the Yenesei River in 1897, where he obtained five nests, each containing six eggs. The nests, he writes (Ibis, 1898, p. 494), were "composed of dry grass with a lining of mud and an inner lining of broad dry grass, and all were placed in small fir-trees close to the stem (except one, which was on the top of a stump) at heights varying between 3 feet and 6 feet." This species is said to occur in summer in the Himalayas, but its nest has not been found there. The eggs from the Yenesei vary considerably, some almost exactly resembling the ordinary type of the Blackbird, whereas others are more like those of the Mistle-Thrush, but have the ground-colour of a deeper blue. In size they vary from 1·08 to 1·15 by 0·77 to 0·84 in. The eggs of a clutch in my collection received from Herr Tancré closely resemble the first figure (fig. 9), but are larger, measuring 1·21 by 0·86 in.

TURDUS SIBIRICUS Pall. Siberian Thrush. (Pl. IX. figs. 13–16.)

Nothing appears to have been known respecting the nidification of this Thrush until the nest was found on the Yenesei River by Mr. Popham in 1895, at Toorukhansk (lat. 66° N.). He there took several nests, but was in no case able to procure the parent bird in order to identify the eggs. In 1897, however, he was more fortunate in this respect, and was thus enabled to prove the authenticity of the specimens taken in 1895, as the eggs of this Thrush are readily distinguishable from those of any other of the species breeding on the Yenesei. Moreover, it nests rather later than the other Thrushes. The nest, he writes (Ibis, 1898, p. 495), is "of the usual type, a rather untidy structure of dry grass, built in the fork of a willow a few feet from the ground, not so bulky as a Fieldfare's, with a scanty wall of mud and an inner lining of coarse dry grass. Four of my clutches somewhat resemble eggs of the Mistle-Thrush, one of which has the blue rather darker than the remainder; in another the eggs are very small and very pale bluish white in ground-colour; one clutch has the ground-colour very pale blue-green and is covered all over the surface of the shell with minute reddish spots. The eggs measure from 1·02 in. long by 0·78 in. broad to 1·18 in. long by 0 87 in. broad."

Mr. Alan Owston of Yokohama has also obtained the eggs of this Thrush in Japan at Fuji, Sagami Hills, and Novikurayama, where it nests in cherry, pine, chestnut, and gumi (*Eleagnus umbellata*) trees at a height of from six to fifteen feet, most often in a cherry-tree about ten feet from the ground. Eggs were taken from the 12th of May to the 28th of July. I have compared specimens from Japan with those obtained by Mr. Popham, and two, from one clutch, agree very closely with fig. 13, but all the rest, though of the same type, are more finely marked, paler, and considerably larger, measuring 1·24 by 0·82 to 1·36 by 0·86 in., while none of the Japanese eggs have the ground-colour bluish, as is the case with almost all those from the Yenesei.

GLAUCIDIUM PASSERINUM (Linn.). Pigmy Owl.

Dr. Rey, in his 'Eier der Vögel Mitteleuropas,' now in course of publication (p. 57), on the authority of Mr. Othmar Reiser of Sarajevo, casts doubt on the authenticity of the eggs of this Owl taken in April 1862 near Cilli by the late Mr. E. Seidensacher, and says that without doubt those of *Nyctala tengmalmi* were mistaken for them. One of them is in my collection, and I have carefully compared it with eggs of *N. tengmalmi* taken in Norway, and with a clutch of the same taken near Cilli by Mr. Seidensacher, and I certainly cannot endorse Mr. Reiser's opinion. The egg of *G. passerinum* is considerably smaller than any that I have seen of *N. tengmalmi*, and in fact than any egg of *Scops gia* in my collection. Besides, Seidensacher was a most careful observer, and was well acquainted with all the birds in his neighbourhood. I can also testify to his extreme care in the identification of eggs, more especially of the rarer species, having collected in company with him for one season in the vicinity of Cilli. Mr. Reiser claims authenticity for two eggs taken by the Rev. Blasius Hanf, near Furtteich, against those taken by Seidensacher, but does not say how they were identified or whether Mr. Hanf obtained the parent bird, so I conclude that he did not do so.

On the whole, especially as I know how careful and conscientious a collector Seidensacher was, I still believe fully in the authenticity of the eggs which he identified as those of *G. passerinum*. Mr. Reiser further states that there is only one of these eggs in the collection of Baron Richard Koenig

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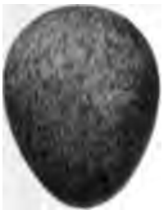
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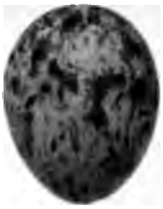
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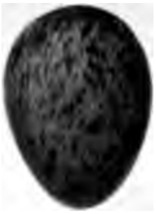
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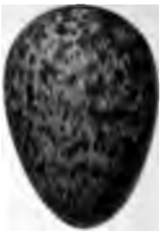
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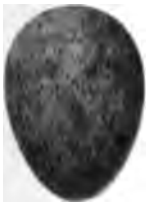
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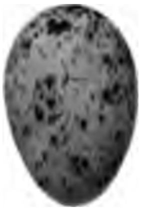
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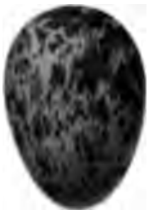
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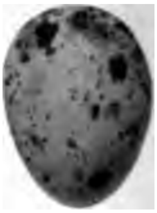
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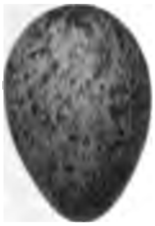
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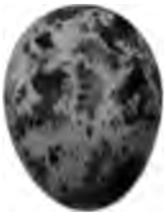
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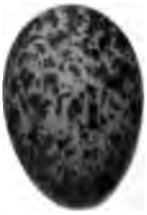
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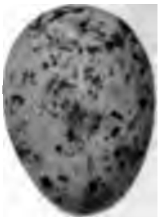
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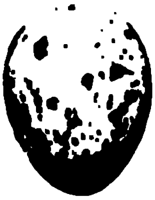
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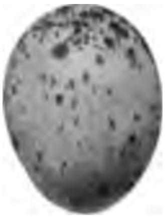
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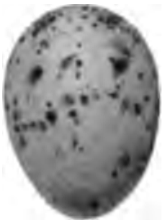
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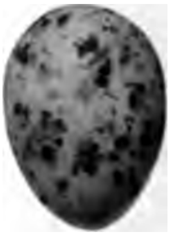
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EGGS OF SIBERIAN THRUSHES.

[illegible], whereas I understood from [illegible] that [illegible] two to that gentleman, and sent the third [illegible].

[illegible], I may state that in the case of the eggs [illegible] which were obtained by Mr. Popham, the [illegible] were shot in almost every instance, so that [illegible] doubt whatever of their authenticity.

EXPLANATION OF PLATE IX.

Eggs of Turdus dubius, p. 445.

Fig. 1. [illegible] Yenisei, 27th June, 1900.
2. [illegible] " 29th "
3. [illegible] " [illegible]
4. [illegible] 22nd June, 1899.

[illegible], p. 446.
[illegible] 17th June, 1900.
[illegible] 15th June, 1897.
[illegible] [illegible] "
[illegible] Daurïa (Dr. Dybowski).

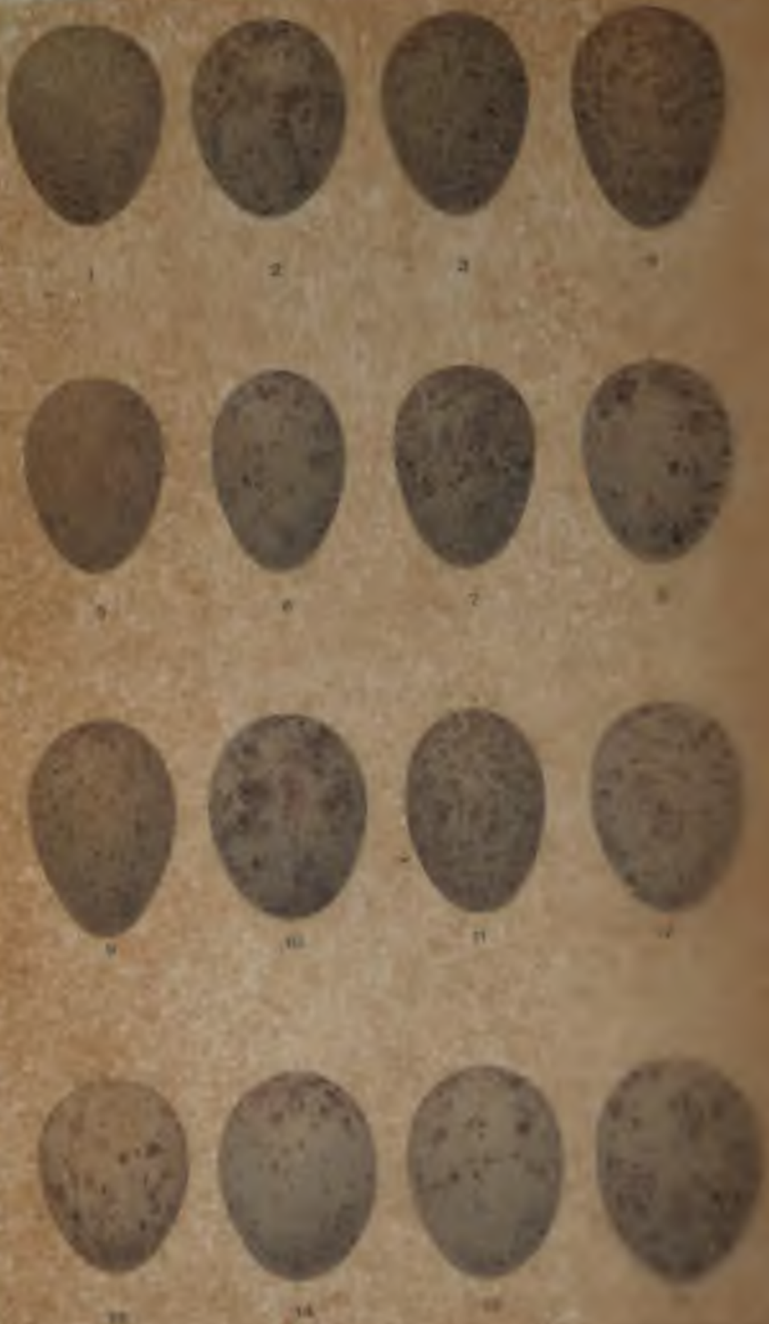
[illegible], p. 446.
[illegible] 26th June, 1897.

[illegible], p. 447.
[illegible] 28th June, 1897.
[illegible] 18th June, 1900.
[illegible] 17th June, 1900.
[illegible] 16th June, 1897.

[illegible] Notes on the *Birds of the Yenisei River*. By H. Leybourne Popham.

[illegible]

[illegible] in Yenisei [illegible] Gerrard & Buck [illegible]. The [illegible] had broken up some few days before our



EGGS OF SIBERIAN THRUSHES.

Warthausen, whereas I understood from Seidensacher that he parted with two to that gentleman, and sent the third to me.

In conclusion, I may state that in the case of the eggs now figured, which were obtained by Mr. Popham, the parent birds were shot in almost every instance, so that there can be no doubt whatever of their authenticity.

EXPLANATION OF PLATE IX.

Eggs of *Turdus dubius*, p. 445.

Fig. 1 (clutch 498). Yenesei, 27th June, 1900.
2 („ 503). „ 28th „
3 („ 493). „ 15th „
4 („ 332). „ 23rd June, 1899.

Eggs of *Turdus obscurus*, p. 445.

5 (clutch 463). Yenesei, 17th June, 1900.
6 („ 271). „ 13th June, 1897.
7 („ 273). „ 14th „
8 („ 278 β). Darasun, Dauria (*Dr. Dybowski*).

Eggs of *Turdus atrigularis*, p. 446.

9 (clutch 269). Yenesei, 13th June, 1897.
10 („ 267). „ „
11 („ 269). „ „
12 („ 200). „ „

Eggs of *Turdus sibiricus*, p. 447.

13 (clutch 307). Yenesei, 20th June, 1897.
14 („ 461). „ 13th June, 1900.
15 („ 24). Toorukhansk, 15th June, 1895.
16 („ 300). Yenesei, 19th June, 1897.

XXXIII.—*Supplementary Notes on the Birds of the Yenisei River.* By H. Leyborne Popham.

(Plate X.)

May 8th, 1900, found me once more at Yeniseisk, accompanied by Mr. Gerald R. Peck, an ardent sportsman. The ice on the Yenisei had broken up some few days before our coming, so that we had not a day to wait for the arrival of migrants.

The season was a curious one: at first came a very early dry spring, with the river breaking up exceptionally soon; then followed a long spell of severe cold. In consequence, some of the birds which bred during the first warm weather were very early, while those that did not do so were very late; thus before we left Yeniseisk on June 12th to go north, the leafage was so far advanced that it was impossible to see a small Warbler; whereas on reaching lat. 66° N. a week later, the willows were only just bursting their buds; while on June 27th ice was still coming down the Doodinka River, and the larch-trees showed no signs of turning green. This delay of summer prolonged the nesting-season in the far north, so that we were still blowing fresh eggs (on July 16th) when in other years all such collecting was over; but this made us too early during our passage down the river for most of the interesting birds, such as Little Buntings and the like. The advantage, however, which we might have derived from this late summer was almost entirely lost by a long delay of twelve days at the Brekhoffski Islands. Here we waited for a day considered fine enough to proceed to Golchika, whence we had planned a boat expedition to the islands below; and as we did not reach Golchika till July 16th, it would have been useless to go farther at so late a date: thus the main object of our journey had to be abandoned.

The tundra was drier than I had ever seen it, and the mosquitoes perhaps not quite so troublesome.

We took a return-ticket on the s.s. 'Yenisei,' a trading-steamer belonging to Messrs. Kitmanof & Co., and were therefore dependent on the movements, or rather stoppages, of that vessel.

I have been able in several instances to remove the brackets which I employed in my former list (Ibis, 1898, pp. 489–520) in the case of those species observed by Dr. Theel and Seebohm but not by myself; but we were not very fortunate in finding new varieties of eggs, so that few asterisks have been added.

I am again indebted to Mr. Dresser for his kindness in looking over the skins which we collected.

The following is a list of those birds which I have not observed before in the valley of the Yenisei, with the addition of a few remarks in cases where my experiences in 1900 differed from those of previous years.

4. *TURDUS DUBIUS Bechst. (T. FUSCATUS Pall.).

A large series of the eggs of this bird was obtained, for we found 78 of them in fifteen nests. One of these was placed as high as 12 feet from the ground in a larch-tree, though the majority were much lower. At Yeniseisk one bird was shot.

7 A. *TURDUS NAUMANNI Temm.

One male was shot by Peck in lat. 66° N., but although we often brought down Thrushes as they flew off their nests in the hope of obtaining eggs of *Turdus naumanni*, they all proved to be *Turdus dubius* except one, which Mr. Dresser considers to be a female of *Turdus naumanni* in worn breeding-plumage: with this opinion Dr. Suschkin agrees. Mr. Dresser describes this bird as follows:—"It has no trace of chesnut or of black on the wings; the under surface of the tail is pale brown, with a faint rufous tinge, and the upper surface dark brown; the rump is pale rusty-red; the flanks are rusty-red, with white margins to the feathers; the under tail-coverts the same colour, with broad white margins and broad white tips; and the upper breast is spotted with blackish brown."

The nest belonging to this Thrush contained six eggs.

9. *PRATINCOLA MAURA (Pall.).

A nest of the Eastern Stonechat at Yeniseisk contained young on June 11th.

16. *PHYLLOSCOPUS SUPERCILIOSUS (Gm.).

In my last paper (Ibis, 1898, p. 496) I stated that the Yellow-browed Warbler was quite the commonest of the small forest-birds. In 1900 it was very scarce.

20. *PHYLLOSCOPUS BOREALIS (Blasius).

On this journey the Arctic Willow-Warbler was obtained at Yeniseisk.

21. *ACROCEPHALUS DUMETORUM Blyth.

Blyth's Reed-Warbler was common at Yeniseisk, where two unfinished nests were found, the outer material being entwined among small upright stems of young wild cherry-trees.

22. *ACROCEPHALUS SCHŒNOBÆNUS (L.).

A nest of the Sedge-Warbler was found in lat. 70° N.

22 A. LUSCINIOLA SCHWARZI Radde.

A Radde's Bush-Warbler was shot by Peck at Yeniseisk, the first that I have obtained from the Yenisei.

27 A. SITTA EUROPÆA Linn.

Several Nuthatches were seen in the forest round Yeniseisk and a specimen was obtained.

30. *MOTACILLA CITREOLA Pall.

Yellow-headed Wagtails were not half so numerous as in 1897.

32. MOTACILLA VIRIDIS Gmel.

One Grey-headed Wagtail was shot at Yeniseisk and another was seen, but the bird does not seem to be at all common.

33. *ANTHUS GUSTAVI Swinh.

The Siberian Pipit is common on the marshes north of Toorukhansk; four nests were found.

35. *ANTHUS TRIVIALIS (Linn.).

37. ORIOLUS GALBULA Linn.

Although not observed at Yeniseisk in 1897, this species was not uncommon in the forest adjoining that town in 1900.

39. LANIUS PHŒNICURUS Pall.

This Shrike was shot at Yeniseisk.

47. COCCOTHRAUSTES VULGARIS Pall.

On two occasions several Hawfinches were seen at Yeniseisk.

48. *PASSER DOMESTICUS (Linn.).

House-Sparrows occasionally go up as far as Igurka (about lat. 67° N.), and breed there in the old nests of House-

Martins, but they rarely, if ever, survive the winter. In lat. 63° N., however, there were a good many Sparrows.

52. URAGUS SIBIRICUS (Pall.).

We found the Siberian Rose-Finch common at Yeniseisk.

53. CARPODACUS ERYTHRINUS (Pall.).

The Scarlet Grosbeak was also far more numerous than formerly, especially round Yeniseisk.

55 A. LOXIA BIFASCIATA (C. L. Brehm).

I am able to remove the brackets in the case of the Two-barred Crossbill, for I shot a male out of a small flock of these birds which were in company with some Hawfinches in the pine-forest close to Yeniseisk, and I bought a pair of them alive in a cage.

56. *EMBERIZA CITRINELLA Linn. (Plate X.)

At Yeniseisk I shot a Bunting which Mr. Dresser says is tolerably closely related to the so-called *Emberiza citrinella* var. *brehmi* of Homeyer, which, however, has much less of the chesnut-red on the throat than my bird. This chesnut-throated form of *E. citrinella* was treated of by Mr. Zarudny in his supplement to the ornithological fauna of the Orenburg Government, and his words have been translated by Dr. Suschkin as follows:—"One of the very numerous aberrations of *Emberiza citrinella* occurring in this country is most interesting, as it reminds one so forcibly of *Emberiza leucocephala*. It is virtually a type of individual variation which I would like to name after Mr. Molesson, who procured the first specimen. . . . The head and throat are coloured as in old males of *Emberiza leucocephala*, with the sole exception that the white portions in that species are replaced in our bird by bright yellow."

A specimen was obtained near Orenburg late in May 1887, and another very beautiful example in the same locality on the 24th May, 1891 (old style). Besides these, Zarudny procured about ten others which were less typical, and connect this form with Homeyer's *Emberiza citrinella* var. *brehmi*. Zarudny considers that this variety points, to some extent, to atavism, and suggests an early ancestral form of *E. citrinella*, nearly related to *E. leucocephala*. It is worthy of note that *E. leucocephala* only occurs in the Orenburg district on passage, and even then is somewhat rare. The second figure of Plate X. represents a bird obtained by Mr. E. S. Montagu from near Barton, Cambridgeshire. It was taken by a bird-catcher in his nets, and appears to be the same as Homeyer's *E. citrinella* var. *brehmi*.

57. *Emberiza leucocephala Gmel.

On this visit I was successful in procuring specimens of the Pine-Bunting at Yeniseisk, and in finding one nest which was well concealed under dead grass in the midst of a thick clump of small bushes; it was composed of dry grass, lined with horse-hair, and contained four eggs on the point of hatching. The song is similar to that of *E. citrinella*.

57 a. Emberiza spodocephala Pall.

Black-faced Buntings were fairly numerous in the Yeniseisk district.

67 a. Garrulus brandti Eversm.

Brandt's Jay was shot at Yeniseisk; this is a decided addition to my previous lists.

74 a. Dryocopus martius (Linn.).

The Great Black Woodpecker was seen on several occasions near Yeniseisk, and one specimen was obtained after some difficulty, as it was extremely shy.

75. *Picus major Linn.

Three nests of the Great Spotted Woodpecker were found at Yeniseisk, where it is the commonest of the family.

77 a. Gecinus canus (Gmel.).

I am able to remove the query from Dr. Theel's list, for we shot two male Grey-headed Green Woodpeckers at Yeniseisk.

79. *Cuculus canorus Linn.

A pale blue Cuckoo's egg without any spots was found in a Bluethroat's nest with six eggs of the owner.

85 A. Circus cyaneus (Linn.).

The bright-coloured birds of prey that we so frequently saw in the neighbourhood of Yeinseisk were, I believe, Hen-Harriers, though we were never able to make certain of their identity by shooting one.

89. Accipiter nisus (Linn.).

The Sparrow-Hawk occurs at Yeniseisk.

96 A. Pandion haliaëtus (Linn.).

Ospreys were occasionally observed in suitable localities round Yeniseisk.

97 A. Ciconia nigra (Linn.).

A single Black Stork was seen at Yeniseisk.

99 A. Anser erythropus (Linn.).

I shot a veritable Lesser White-fronted Goose on the Fokina River (lat. 68° 30′ N.); it weighed only 4¼ lbs., or very little heavier than a Brent Goose, and had conspicuous bright yellow eyelids. In about lat. 69° 30′ N. a man brought on board for sale 38 geese, selected from some 200 that he and others had captured during the moulting-season; the birds had been plucked, but the heads were intact, so that we could see that the majority were Bean-Geese, with a few White-fronted Geese (*Anser albifrons*); among the latter we were easily able to pick out two of the Lesser variety, from their smaller size and comparatively smaller heads with shorter bills, as well as from the yellow eyelids. They had a considerable amount of white on the forehead extending well up between the eyes.

101. *Bernicla ruficollis (Pall.).

The valleys where the Red-breasted Geese bred in 1895 were still full of snow when we visited them on July 2nd, 1900, and though we saw some of the birds in various places we found no nests.

102 A. Tadorna cornuta (Gmel.).

We did not ourselves observe this Sheldrake, but were shown one in the flesh that had been killed by a local gunner and brought to the Yeniseisk Museum. It was new to the collection there, as well as to my list.

104. *SPATULA CLYPEATA (Linn.).

Shovelers were common at Yeniseisk, and some newly-fledged young were obtained in lat. 66° 25′ N.

106. QUERQUEDULA CIRCIA Linn.

We often saw Garganeys at Yeniseisk.

107. QUERQUEDULA FORMOSA (Georgi).

It was rather surprising to meet with Baikal Teal so far north as lat. 70° N.

111. *FULIGULA CRISTATA (Leach).

Tufted Ducks were plentiful at Yeniseisk and up to Doodinka (lat. 69° 30′ N.).

120 A. COLUMBA sp. inc.

During our drive from Yeniseisk to Krasnoyarsk we saw some Doves, but were unable to determine the species.

124. TETRAO TETRIX Linn.

1900 was an unusually good season for Black Grouse in the Yeniseisk forest.

124 A. ? PORZANA MARUETTA (Leach).

At Yeniseisk we heard what we thought was a Spotted Crake, but could not get a sight of the bird, which successfully eluded all our efforts to make it break cover.

125 A. FULICA ATRA Linn.

A Coot was seen swimming on the river near Yeniseisk.

128. *CHARADRIUS FULVUS Gmel.

A Golden Plover, having some of the axillaries white and some smoky-grey, was shot from its nest at Doodinka. This bird is supposed by Mr. Dresser to be a hybrid between *Charadrius pluvialis* and *Charadrius fulvus*. The eggs taken from this nest resemble those of *Charadrius pluvialis*, and measure from 1·88 in. to 1·96 in. in length by 1·45 in breadth, dimensions which correspond very nearly to the size of eggs of the Lesser Golden Plover.

130. *Ægialitis curonica (Gmel.).

Young Lesser Ringed Plovers, still retaining some down, were observed on a small shingle-bank in the river in lat. 61° 10′ N.

131. *Ægialitis hiaticula (Linn.).

132. *Eudromias morinellus (Linn.).

Dotterels are not numerous on the Yenisei; one nest was found near Doodinka.

140. *Gallinago stenura (Kuhl).

The drumming of the Pintailed Snipe may best be described as resembling the sound made by unwinding the line from a salmon-reel with rapidly increasing speed. Four nests were taken.

140 a. Gallinago gallinula (Linn.).

I shot a Jack Snipe in about lat. 69° 30′ N., during our journey up stream, thus confirming Dr. Theel's observation.

144. *Tringa subarquata (Güld.).

All chance of reaching the breeding-grounds of the Curlew Sandpiper was ruined by our enforced delay at the Brekhoffski Islands.

144 a. Tringa canutus Linn.

Two Knots, both females, were shot at Vórogova (lat. 61° N.) on June 14th. The ovaries contained eggs about the size of No. 1 shot. They were with two other Sandpipers which appeared somewhat smaller and may have been *T. subarquata*.

149. *Totanus glareola (Linn.).

I was able to confirm my observations made in 1895 as to the breeding of Wood-Sandpipers in the old nests of Thrushes, for we found two such nests, from which a male and female were shot, and two other nests on the ground at Doodinka, where the tundra begins.

153. *Limosa lapponica (Linn.).

We found one nest near Golchika containing three young Bar-tailed Godwits in down and one egg just hatching.

154. **Numenius arquata** (Linn.).

The query can be removed from my former list (Ibis, 1897, p. 106), as we both saw and heard Curlews at Krasnoyarsk and Yeniseisk.

157. ***Larus canus** Linn.

A Common Gull's nest was found, placed on the top of a stump about 12 feet high.

162. ***Stercorarius crepidatus** (Banks).

No Skuas of any kind appeared to be nesting except a pair of Richardson's Skuas which had one egg at Golchika.

167. ***Colymbus arcticus** Linn.

In the forest region the Black-throated Diver is more numerous than the Red-throated Diver.

168. **Podiceps griseigena** (Bodd.).

Three Grebes were seen at Yeniseisk by Peck, which he thinks were Red-necked Grebes.

XXXIV.—*Results of an Ornithological Journey through Colombia and Ecuador.* By Walter Goodfellow, F.Z.S.

[Continued from p. 319.]

Fam. TANAGRIDÆ.

59. **Procnias tersa** (L.).

A series of adult males and females and immature males from Santo Domingo and Gualea, W. Ecuador, must be referred to the subspecies *P. occidentalis*, and those we collected at Archidona, at the foot of the Eastern Andes, to *P. tersa typica*. The latter are of a decidedly deeper blue, and not so distinctly barred about the sides of the abdomen, while the tail is blacker and less edged with blue on the upperside. The female is of a much yellower green than in the Western form. Owing to their protective colouring, they are less often seen than the males. They frequent the open clearings around the huts, and I never once saw them in the forests. At Santo Domingo they eat a hard green fruit, like an English sloe in size and shape, and it seems wonderful how they can swallow anything so large.

They also eat the young green shoots from some undetermined bush or plant.

60. Euphonia nigricollis (Vieill.).

Eight males and one female from Guápalo, near Quito (8100 feet), and from the western side of Pichincha at about the same altitude. I was told that they but rarely come quite up to Quito, while they are only occasional visitors to Guápalo. They are generally met with in small flocks, and keep to the highest trees. One of our specimens is orange over the nostrils.

61. Euphonia rufiventris (Vieill.).

A male from the mouth of the Coca River, Upper Rio Napo, E. Ecuador. A skin in the British Museum, collected by Buckley, must be labelled "Intaj" by an error, as it is unlikely that a bird found down on the Napo should also be found high up on the Pacific side of the Andes.

62. Euphonia saturata Cab.

Two males from Archidona, Eastern Ecuador, shot in the forest.

63. Euphonia xanthogastra Sund.

Nine males and five females from Santo Domingo and Gualea, W. Ecuador, where they were not rare in the forests. Small flocks of five or six were generally found hunting about together among the thick parasitical plants.

64. Tanagrella calophrys (Cab.).

A male from the mouth of the Coca, Upper Rio Napo, May 1899. Shot in the clearing near the hut. The bird is evidently rare in this locality, as the Indians seemed to be unacquainted with it.

65. Chlorochrysa bourcieri (Bp.).

Chlorochrysa bourcieri, Berl. et Tacz. P. Z. S. 1885, p. 77.

Baeza, E. Ecuador (5000 feet). We only saw one pair, which were searching among the parasitical plants that thickly covered the tree-trunks on the edge of the forest. They appeared to have much the same habits as *Calliste*. Doubtless confined to the eastern side of the Eastern Andes.

66. Chlorochrysa phœnicotis (Bp.).

A male from above Nanegal, Western Ecuador. As in the case of the preceding species, it was shot among the thick creepers which festooned a tall tree in the forest. Confined to the western side of the Western Andes. Evidently by mistake, Buckley stated that his skins came from Sarayacu and the Napo.

67. Pipridea melanota venezuelensis (Scl.).

One male from Pichincha (11,000 feet) in December, and two males from Papallacta, E. Andes (11,500 feet), in February. All our three skins appear to be those of males, yet the Pichincha bird has a mauvish-coloured head and rump and a deep blue-black mantle, while the Papallacta specimens have the head and rump of a more turquoise shade and the mantle bluish slate-colour, the outer margin of the wing-feathers being edged with the same. Iris in all cases bright red. The stomachs contained berries.

68. Procnopis vassori (Boiss.).

Nine adult males, three young males, and four females from Canzacota, Gualea, and Mindo, Western Ecuador, between 6500 and 8000 feet, and Baeza, Eastern Ecuador, 5000 feet. The birds are seen singly or in pairs, and frequent the higher trees, often in company with various species of *Calliste*. The stomachs of several contained little but insects, in the case of those from Mindo only berries. The females and young males are more dingy.

69. Calliste yeni (Lafr. & D'Orb.).

Two males from the Coca, Rio Napo, and Iquitos, Upper Amazon respectively. The Coca specimen was shot in the clearing by the hut in which we were staying, but the other was caught among the banana-trees in a small garden in the centre of the town of Iquitos. It was kept alive for several days tied to a perch by a string around its leg, and was brought to me after it died.

70. Calliste rufigularis (Bp.).

Ten males and four females from Mindo, Intaj, and other

Canzacota, San Nicolas, and Gualea, from between 1000 and 6000 feet, but they were rare at the last-named place in September, and when we passed through it at the end of October we did not see a single example. An intelligent native of Canzacota told me that these birds only came there during August and September, and I think it is the case with other members of the genus that they resort to higher altitudes only at certain seasons of the year. The young male is wholly dullish green, with a very slight coppery hue about the head. The females have paler blue breasts, slightly mixed with green, the rump greenish blue, and the head washed with green. This species frequents the lower trees and bushes.

75. CALLISTE BOLIVIANA Bp.

One male and one female from the Rio Tiputini, an affluent of the Napo. They were shot in the clearing near the hut, on the same tree, on two consecutive evenings just before dusk.

76. CALLISTE RUFICERVIX (Prév.).

Four adult males, one young male, and three females from San Nicolas, Intaj, and the neighbourhood, W. Ecuador. This is another *Calliste* which frequents bushes and low trees. The female is slightly duller on the crown.

77. CALLISTE NIGRIVIRIDIS (Lafr.).

Of these birds we evidently have two forms in our series—a bluish-green variety, which we found confined solely to the western or Pacific side of Ecuador, and a yellowish-green variety, confined to the eastern or Amazonian side. Placed together they seem very distinct, and ought, we think, to be divided, but in the British Museum they are classed together. Of the blue variety we obtained five males and three females from Canzacota and Western Pichincha (6500 to 8000 feet), and of the yellow variety three males and two females from Baeza (about 5500 feet). The respective females are not quite so bright as the males, and have more black on the head, while they are paler about the vent and under tail-coverts. In both localities we found them inhabiting high trees.

throughout this genus), while those from the eastern side had it dark grey. The females have the vent more fawn-coloured than the males, and the same colour extends up the centre of the breast.

84. CALLISTE CYANOPYGIA (Scl.).

Nine adult males, three young males, and three females from Canzacota, Gualea, and the western side of Pichincha, at altitudes of from 6000 to 8000 feet. Found in high trees on the more open parts of the mountain-slopes. The females are much duller than the males, and have the under tail-coverts dark green, edged with pale greenish yellow, and in one skin with light fawn; they have also less gold on the shoulders. Young males resemble the females, but have brighter golden shoulders.

I believe this species to be undoubtedly confined to the western side of the Andes.

85. IRIDORNIS DUBUSIA (Bp.).

Three males and two females from the western side of Pichincha and Corazón, at altitudes of about 7500 feet, seen singly or in pairs. The females have slightly more black on the forehead than the males, and also have the under tail-coverts rufous. Iris dark red.

Here again I think Buckley's skins in the British Museum are wrongly localized, for I cannot believe it possible that this bird is found also in the hot forest-land of the Napo. We certainly never came across it there. Very many of Buckley's skins are merely labelled "Quito," which is most misleading, while "Sarayacu" figures as the locality for all birds from the eastern side, irrespective of altitude, as well as for many which are not found there.

86. PŒCILOTHRAUPIS LUNULATA (Du Bus).

A large series of this Tanager from Pichincha and the environs of Quito, West Ecuador, and Papallacta, East Ecuador, where they range from 9000 to 11,500 feet. During November and December, when many kinds of berries were ripe on the mountain-slopes above Quito, these birds were remarkably abundant. They sat on the topmost twigs, and, if disturbed, appeared to drop off suddenly into the bush below.

87. Pœcilothraupis palpebrosa (Lafr.).

Five males and two females from Papallacta, Eastern Andes (11,500 feet), to which range they are probably confined, for we met with none in West Ecuador. The two females are scarcely so blue on the rump as the males. This species was generally found in the same trees as *Heliochera rubrocristata.*

88. Buthraupis cucullata (Jard.).

A good series of this bird was obtained on both sides of the Andes, at altitudes of from 9000 to 11,500 feet. The western was the only side of Pichincha on which we saw them, but they were more numerous at Papallacta. They have a very harsh call-note, and were generally met with in the company of the following species, *B. chloronota.* Iris bright red.

89. Buthraupis chloronota (Scl.).

Four males and one female from both Cordilleras, at the same altitudes as the preceding species. It was impossible to tell the call-note of one from the other. Although we explored the Volcano of Pichincha so thoroughly on every side, we only met with these birds (and many others) on the western slope. The nature of the vegetation is very different on that side from what it is on the other three, and this fact probably accounts for numbers of birds frequenting that part of the mountain only. The female is blacker about the forehead than the male.

90. Compsocoma victorini (Lafr.).

A series from various localities along the Western Andes at altitudes of from 9000 to 12,000 feet.

91. Compsocoma sumptuosa (Less.).

This still handsomer species we found rather common at Papallacta, on the Eastern Andes, in February, and we procured about a dozen specimens during our stay there.

They seemed to feed entirely on berries and fruit. Iris reddish brown.

92. Compsocoma notabilis (Jard.).

One male, apparently of this species, was obtained on the lower part of the western side of Pichincha, at an altitude of about 7000 feet.

93. Dubusia tæniata (Boiss.).

Three males from Pichincha (11,000 feet) and one female from Papallacta, East Ecuador, which has the rump dark green. These birds make a loud chattering noise. Iris bright red.

94. Tanagra cœlestis (Spix).

Our specimens were procured at Archidona at the foot of the Eastern Andes, which was the only place in the Napo district where we met with them. We did not see any more until we reached Pará, at the mouth of the Amazon, where some were flitting about among the palms in the centre of the city. They looked to me to be of the same species, having white shoulders, which are very conspicuous when the birds are flying. They have quite a sweet song, and I often heard them singing in the Chonta palms around our hut at Archidona. They are generally found in pairs, and keep to the higher trees.

95. Tanagra cana Sw.

Common in the hot forest-regions of Western Ecuador, at Santo Domingo, Guanacillo, and other places, where they frequent the banana-plantations and the fruit-trees around the huts. Specimens from the foot of the hills seem to be less blue than those from farther down into the forests. Local name, "Azulejo."

96. Tanagra palmarum, Max.

The subspecific term '*violilavata*,' of Berlepsch and Taczanowski (P. Z. S. 1883, p. 546), probably applies to the West Ecuadorian form of this species, of which we obtained many examples in the clearing at Santo Domingo; but those we shot at Archidona, at the foot of the Eastern

Andes, were probably typical *T. palmarum*. There is an obvious difference between them, those from the Amazonian side being of a duller violet, and having the head yellowish green. These birds are tame in their habits, and frequent the vicinity of the huts.

97. Tanagra darwini (Bp.).

Two specimens of this species were shot in the gardens of the British Consulate at Quito, where they are occasionally met with. They come up from the "quebrada" of Guápalo during December and January to feed on the seeds of various flowering-trees, and are said to commit great damage in the gardens. Their call-note is beautifully clear, and resembles a long drawn-out whistle, going up the scale and then slowly descending. This is followed by a loud cry of "*Guarichi*" uttered three times in succession. Hence the bird is locally called "Guarichi."

98. Tanagra cyanocephala (Lafr. & D'Orb.).

One male from Gualea, West Ecuador, in August. So far as I can remember, the specimens collected around Popayán in Colombia belonged to this species. If so, we only met with it in these two localities, and we found it rather more numerous in Colombia than in Ecuador, but by no means common anywhere.

99. Rhamphocœlus nigrigularis (Spix).

A male and female killed at one shot at the Coca, Rio Napo, in June. These birds were not common there, but much lower down the river, at the mouth of the Tiputini, I saw from the platform of our hut a flock of about thirty settle for a while on the tops of some bushes not far off, two nights in succession, just about sunset. The female is brownish on the black parts, and has the scarlet not quite so intense as the male. Surely it is a mistake to say that this species ranges to Western Ecuador, as is stated in the British Museum Catalogue (xi. p. 172).

100. Rhamphocœlus jacapa (L.).

Females of this species were fairly numerous at Archidona, and males only at the Coca, lower down the river. It frequents fruit-trees in the Indian clearings. The young males can be distinguished from the females by being more red, and by having faint white tips to the tail-feathers. They were in full moult at the Coca in May, and it was difficult to get any in good plumage.

101. RHAMPHOCŒLUS ICTERONOTUS Bp.

Confined to the Western side, and very numerous around the huts at Santo Domingo, where they were still breeding in October in the orange-trees, about eight feet from the ground; but the foliage was so thick and so prickly, and the nests were so far in, that it was impossible to get at them without cutting down the trees, which their owners would not let us do. I satisfied myself that one nest belonged to a pair the male bird of which was not yet in complete adult plumage. My very young males differ from the females in having the under tail-coverts brownish black, very slightly tipped with yellow, while the latter have them wholly yellow. Local name, "Plataneros."

102. PYRANGA ÆSTIVA (Gm.).

Three males and one female from Canzacota, West Ecuador (6500 feet), Quito (10,000 feet), and Baeza, East Ecuador (5500 feet). Our Consul at Quito told me that he had never seen more than three at that altitude during the thirty years he had lived there. The specimen we shot in the garden during our stay at the Consulate had been in the neighbourhood for several days, but was very shy and tried to conceal its bright coat in the trees as much as possible.

103. EUCOMETIS CASSINI (Lawr.).

One male, from Santo Domingo, shot in the forest in October.

104. TACHYPHONUS LUCTUOSUS Lafr. & D'Orb.

Three males from San Nicolas, West Ecuador, and two from the Coca, Rio Napo, East Ecuador.

105. TACHYPHONUS SURINAMUS (L.).

One male from near the mouth of the Coca, where this bird frequents the undergrowth on the edge of the forest.

113. CHLOROSPINGUS FLAVIGULARIS (Scl.).

Three males and two females from Gualea, Milligalli, and Canzacota, West Ecuador (6000 to 8000 feet). The females have the crown and sides of head dark greyish, the upper throat fawn, and the lower throat greenish yellow right across, and not divided as in the male. The iris is dark reddish brown.

114. UROTHRAUPIS STOLZMANNI (Tacz. & Berl.).

Urothraupis stolzmanni, Tacz. et Berl. P. Z. S. 1885, p. 83, pl. viii.

At Papallacta, Eastern Andes (11,500 feet), we shot two males and a female of this Tanager. One male has the shoulders rather pale grey, but the other, which is probably younger, has them dull greenish-grey, and the wings a little shorter. The female has the wing-coverts edged with greenish grey, the throat and breast not so white as in the males, and the vent and sides washed with dull green.

115. BUARREMON ASSIMILIS (Boiss.).

Eight males and four females from Pichincha and Papallacta, on both ranges of the Andes, at about 11,500 feet. These birds seem to live mostly on the ground, and run about under the bushes. One female from Papallacta has the sides of the mandible yellow, and the head very much flecked with olive-green. Iris dull red. Local name at Quito, "Monjas."

116. BUARREMON BRUNNEINUCHA (Lafr.).

One male from the west side of Corazón (about 7000 feet), in September.

117. BUARREMON LEUCOPTERUS (Jard.).

Two males and two females from Pichincha (10,000 feet). The females have fawnish-grey thighs and vents, and the heads less clearly marked. Not common in this locality.

118. BUARREMON PALLIDINUCHA (Boiss.).

Four males and two females from Papallacta, East Ecuador. In pairs in February, and in breeding condition. The females have the nape dull white and the crown more brownish yellow than the males.

119. Buarremon schistaceus (Boiss.).

Six males and only one female from Papallacta. Also in breeding condition in February. The female has the white markings on the primaries much duller than has the male.

120. Buarremon spodionotus (Scl. & Salv.).

Buarremon spodionotus, Scl. Cat. B. xv. p. 264.

Six adult males and one young male from Papallacta, East Ecuador, in February, and two males and one female from Corazón and Pichincha, West Ecuador (11,000 to 12,000 feet), in November and December. The young male from Papallacta is just changing its speckled for a yellow breast, and has the crown of the head and nape light brown, the mantle and rump being rusty slate-coloured. The two western males have the crown very pale, shading off into decided fawn-colour on the nape. The female is probably very young, and has the head black with only a few dingy fawn-coloured feathers down the nape.

121. Arremon spectabilis (Scl.).

One male from Santo Domingo, in October, and one female from San Nicolas, West Ecuador, in September. Sexes alike. Legs and feet yellow, bill yellowish red.

122. Oreothraupis arremonops Scl.

A male from below Miudo, West Ecuador (about 6000 feet). We shot another of these birds at a higher altitude, but it was stolen with other skins from a hut where we were staying. It was much paler coloured than the former, the feathers of the throat and breast being edged with brown instead of black, and the head blackish brown. The wings and tail were of the same rufous shade in both.

123. Cissopis leveriana (Gm.).

From Archidona and the mouth of the Coca, Upper Rio Napo, where individuals were by no means rare in the clearings around the Indian huts. They eat largely of small, hard, green buds, and invariably alight on the topmost twigs of the bushes where these grow. They were always in pairs, and were moulting heavily in May. It is very difficult to pass the head of these birds through the neck when skinning them. The Indians of the neighbourhood use the skins largely in their ornaments. In Quito, where the people know these birds from seeing preserved specimens, they call them "Dominicos."

124. PSITTOSPIZA RIEFFERI (Boiss.).

Eight males and five females from Canzacota, West Ecuador (6500 feet), in August and September, and below Baeza, East Ecuador (5000 feet), in March. The females on the whole are a shade lighter in colour, have less blue around the base of the bill, and the vent also less rufous. In life the bill, legs, and feet are bright coral-red, and not orange or yellow as stated in the British Museum Catalogue (xi. p. 281). The bright green plumage fades very much after the skin has been kept for a time. These birds live in pairs in the high trees, and their curious call-note is easy to imitate, so that if one is shot, its mate can be attracted back to the same spot. They feed on berries of a juicy nature.

125. SALTATOR MAGNUS (Gm.).

Three males from Santo Domingo, in October, and two females from San Nicolas, in September. They frequent the fruit-trees and the banana-plantations. The females seem to be greyer about the crown and sides of head than the males, and much lighter down the centre of the breast.

126. SALTATOR SUPERCILIARIS (Spix).

From the Coca, Upper Rio Napo, in May and June. They were numerous at times in the fruit-trees around the huts, and were generally found feeding in the company of *Rhamphocœlus jacapa.* They have a loud, sweet song, and, when uttering it, always sit on the highest twigs.

127. SALTATOR ALBICOLLIS (Vieill.).

Two males and one female from below Gualea (West Ecuador), in July and August.

128. SALTATOR ATRIPENNIS Scl.

One male from Gualea, in August.

Fam. FRINGILLIDÆ.

129. PHEUCTICUS CHRYSOGASTER (Less.).

A good series of adult and immature birds was procured from Quito and the Chillo Valley. They only come up to Quito during the months of November, December, and January, when they do considerable damage in the gardens to buds and young shoots, which they appear to pull off the trees out of pure wantonness. They feed largely on the seeds of various acacias, both green and ripe. They have loud and agreeable notes, and their flight is clumsy and short. They frequent the Chillo Valley all the year round, and I often saw a dozen or more together pecking about on the old stone walls around the village of Pifo. I found one of their nests at this place in October. It contained two young, and was built on the lower branches of an acacia-tree. Immature males and females always seemed to predominate in Quito, and it was quite rare to see an adult male there. It is easy to distinguish the young males from the females; the latter, for instance, are much darker on the breast, and have the under tail-coverts pale cinnamon, whereas all the former that we shot had them white.

130. SPERMOPHILA OPHTHALMICA (Scl.).

Very common at Santo Domingo in October, where during the midday hours they assembled in large flocks on the grass around the huts. Iris reddish.

131. SPERMOPHILA GUTTURALIS OLIVACEA (Tacz. & Berl.).

Spermophila gutturalis olivacea, Tacz. et Berl. P. Z. S. 1885, p. 122.

As common as the last species, and always found feeding with it. If we fired into a flock we generally brought down about equal numbers of both kinds.

132. CATAMBLYRHYNCHUS DIADEMA Lafr.

Three males from the vicinity of Mindo, West Ecuador, about 7000 feet. We found them singly in the higher trees, and never saw but these three.

133. PAROARIA GULARIS (Linn.).

Not rare on the Napo near the mouth of the Coca, but not found above it; the range extends from that river to the Marañon. We never saw these birds away from the river-banks, and they were generally sitting on the trees which overhung the water or flying along close to the surface. Iris dark reddish brown. Sides of the mandible yellow at the base.

134. Coryphospingus cruentus (Less.).

One female shot at Santo Domingo in the fruit-trees near the hut. The stomach contained what looked like grass-seeds.

135. Spodiornis jardinii (Scl.).

One male from Milligalli, West Ecuador (6000 feet), in September.

136. Phrygilus unicolor (Lafr. & D'Orb.).

Five males and four females. This bird was fairly numerous around Quito, especially in the hedges on the El Egido plain to the north of the city. We also found it at Aloag, a village above Machachi, about 9500 feet.

137. Phrygilus ocularis Scl.

Found in the fields around Quito and the Chillo Valley, in small flocks, in November and December.

138. Phrygilus alaudinus (Kittl.).

Met with in company with *P. ocularis*, but not so numerous.

139. Catamenia analoides (Lafr.).

Three males and two females from the environs of Quito and the Chillo Valley. These birds are often kept in cages in Quito, as they have a nice song. The young males seem to be greyer than the females.

140. Catamenia homochroa Scl.

Three males and one female. This bird is met with along the hedgerows in the vicinity of Quito. In November, when other members of the genus were in flocks, we found this species as a rule in pairs only among the thicker bushes and hedges.

141. Zonotrichia pileata (Bodd.).

Common in Quito, where it takes the place of our domestic

Sparrow, and also in many towns of the central tableland. We found that it ranged up the Western Andes to just over 11,000 feet, and over the western side of them down to Milligalli (6000 feet); but we only saw three there altogether, and at no other place on the same side at anything like such a low altitude. I was told that the birds were occasionally enticed down by grain which falls from the sacks as the mules carry them from the highlands to the forests below. There were certain villages in the Chillo Valley where we never saw them, but they were plentiful around the tambo on the Tablon (11,750 feet), on the western side of the Eastern Andes, though unknown at Papallacta, 11,500 feet, over on the eastern side of the same range. Nor did we see any at Pedregal or in the Valle de Viciosa, on the Eastern Andes. I believe that they were the birds which were quite common at Popayán, Colombia (5825 feet). In Quito they were very tame, and frequently came into the rooms. They nested there under the tiles and among the creepers on the trees and walls. They have a sweet but rather melancholy song, and may often be heard singing on moonlight nights. They are seldom seen far away from the dwellings of man. I saw an apparently pure albino in Quito and several partial albinos, but did not secure any. Local name, "El Gorrión."

142. EMBERNAGRA CHRYSOMA Scl.

One male from Gualea, Western Ecuador.

143. CHRYSOMITRIS ICTERICA CAPITALIS Cab.

Chrysomitris capitalis Sharpe, Cat. B. xii. p. 219.

A large series of adult and immature males and females from Quito and the Chillo Valley. At both places they congregated in large flocks in November, December, and January, and filled the air with their sweet song. In Quito they eat the seeds of most of the flowering plants in the gardens, but in the Chillo Valley they feed chiefly on grass-seeds.

144. SYCALIS ARVENSIS LUTEIVENTRIS (Mayen).

Sycalis luteiventris Sharpe, Cat. B. xii. p. 383.

We did not find this bird *in* Quito, but shot a few in the environs, and in the Chillo Valley they were common and generally in flocks with the preceding species.

Fam. ICTERIDÆ.

145. CLYPEICTERUS OSERII Deville.

One female only from the Upper Rio Napo, near the mouth of the Coca, where this bird was not common. I had two males brought to me by the Indians, but they had kept them too long to be worth skinning.

146. OCYALUS WAGLERI (Gray & Mitch.).

We shot a large series of examples of this bird at Santo Domingo, Western Ecuador, where we found them not at all rare. They frequented the banana-plantations and did great damage to the ripe fruit. We also shot two in the depths of the forest, but as a rule they live chiefly in the open clearings. Some of their notes are very fine and liquid, and others are like the sound of gurgling water. Their flight exactly resembles that of a Toucan, and in the evening they assemble in flocks and retire for the night to the high trees on the edge of the forest. The whole of the bill is pale lemon-yellow. Iris pale blue in the male, and greyer in the female.

147. OSTINOPS CRISTATUS (Gm.).

Six males but no females from the Coca, Upper Rio Napo, where they were fairly numerous in small flocks. Wherever we went the males of this genus always seemed more plentiful than the females. Indian name, "Manga."

148. OSTINOPS ANGUSTIFRONS (Spix).

Two pairs, also from the Coca. Seen in couples and always in the thick forests, whereas the other species seem to prefer the river-banks. The bill is black, with the base and tip yellow. Iris sky-blue, and rim of the eyelids red. Indian name, "Manga pana."

149. OSTINOPS DECUMANUS (Pall.).

One male from the Coca. It had a large piece of the base of the bill broken away, which damage had evidently been sustained a long time previously. It was such a large hole that it was wonderful how the bird had been able to pale lemon-yellow (not "white," as stated in the Brit. Mus. Cat.) and the iris is pale blue; but in the young the bill is grey, with a yellow tinge at the tip, and the iris is dark grey. The Ecuadorians call them "Culembras," but the Napo Indians called them "Chaupi mangas."

152. CASSICUS AFFINIS Sw.

From Baeza, E. Ecuador (5500 feet), but we did not meet with any below that place. They were in small flocks on the more open sides of the mountains. Bill pale yellow. I do not think it possible that this bird can be also found on the Western Andes, and the skin in the British Museum obtained by Buckley must be so labelled by mistake.

153. CASSICUS LEUCORHAMPHUS (Bp.).

Three males and two females. We constantly met with this species in small flocks during our first two days' walk after we left Baeza, but nowhere at a lower level. It also frequented the mountain-sides where the forests were less dense, and is undoubtedly found on the eastern side only.

154. ICTERUS CROCONOTUS (Wagl.).

A male and female from the Suno, Upper Rio Napo. We frequently saw pairs, but they seemed confined to the edge of the forests along the river-banks and places where bamboos grew. On the Coca, in June, I saw three of their nests in close proximity suspended from the tips of bamboos overhanging the water. The bare skin around the eyes is dark slaty-blue. Beautiful as the colour of these birds is in the skin, it is still more beautiful in life. I noticed that our specimens faded as soon as they began to dry, and turned more yellow. The Zapáro Indians called them "Palandra pisco," which was not very distinctive, for they applied the same name to other birds. It means Plantain-bird.

155. AMBLYCERCUS HOLOSERICEUS (Scop.).

A male and female from the foot of the Eastern Andes, Upper Rio Napo. We also saw the birds about the mouth of the Coca River in May and June, but they were then moulting so heavily that they were not worth shooting. They were not common in any locality that we visited, were generally in pairs, and frequented the lower growth about the edges of the forests. Bill leaden horn-colour. Iris grey.

156. GYMNOMYSTAX MELANICTERUS (Vieill.).

A very young male from the Coca, Upper Napo, in June. It was brought to me alive, with one leg and a wing broken. The back is very brown, and still has down hanging to some of the feathers. The primaries and secondaries are yellowish brown on the outer margin. In life the bare skin around the eyes is flesh-colour, and the legs and feet are pinkish grey. Iris pale brown.

157. STURNELLA BELLICOSA De Fil.

A male from the vicinity of Chimborazo at an altitude of about 8000 feet, where they seemed fairly numerous. They frequented stony regions, and I observed them turning over the small stones to look for insects underneath. They are common in captivity throughout the towns of Central Ecuador.

158. CASSIDIX ORYZIVORA (Linn.).

A very large series, chiefly from Santo Domingo and San Nicolas, West Ecuador, collected in September and October; they were not met with at a higher altitude than about 3000 feet. During the first week or two of our stay at Santo Domingo we never saw one of them, then a large influx took place, and many could be observed all day and every day about the clearing, but never within the forest. They frequented the banana-plantations, and we often shot them while they were eating the ripe fruit. We also frequently saw them alone, and in the company of *Crotophaga ani*, sitting on the backs of the sleeping cattle or on the ground around them. At both Santo Domingo and San Nicolas they were called "Garapateros" (tick-eaters), and *Crotophaga ani* was called "Chamom."

When whistling they expand the thick feathers on the neck like a ruff. The females are much smaller, and black, without the purple gloss. Iris yellow, but less bright in the young. I found grasshoppers in the stomachs of three examples.

Fam. Corvidæ.

159. Xanthura turcosa (Bp.).

Seven males and four females from the west side of Pichincha and Mindo in November, Nanegal in July, and Papallacta, East Ecuador (11,500 feet), in February. They were more numerous on the Eastern Andes and went in larger flocks there. I found berries of various kinds in the stomachs, and also beetles. Mr. Hamilton shot one which had the egg of some small species in its bill, and I killed another which was eating a young bird. They have rather a harsh cry, and while on the Western Andes they were always in the highest trees and were decidedly shy; at Papallacta they frequented the bushes in the vicinity of the huts in flocks of four or five together. Local name, "Auroras."

160. Xanthura incas (Bodd.).

Five males and one female from Baeza, Eastern Ecuador, and the small valleys below. They were in flocks of from twenty to thirty and frequented very high trees, keeping up an incessant chattering the whole time. The young have the nape much bluer than the adults, and the blue on the cheeks and forehead greenish. I believe that this species is the same as that we shot in the mountains above Popayán and around Pasto, in Colombia. It is found only on the eastern side of the Andes in Ecuador. Local name, "Pantanja."

161. Cyanocorax violaceus (Du Bus).

Two pairs from the Rio Suno, Upper Napo, which was the only locality where we saw them. They were in couples, in the tops of the high trees in the forests, and were moulting in May and June. The females seem to be more grey than the males. The stomach of one contained the remains of a small lizard.

[To be continued.]

XXXV.—*On the Ornithology of the Gambia River.*

By John S. Budgett, M.A., Trinity College, Cambridge.

In visiting the Gambia Colony between November 1898 and July 1899, my chief object was the study of its fishes, so that this paper by no means professes to give a complete list of the birds, though it is hoped that a record of such as were noticed may be found useful to my readers. Apart from A.-T. de Rochebrune's unsatisfactory 'Faune de la Sénégambie' (1884) (which is generally supposed to be barely trustworthy), I have only been able to find two articles treating solely of the avifauna of the district, namely, "Notes on the Ornithology of the Gambia," by Dr. Percy Rendall (Ibis, 1892, pp. 215–230), which gives an annotated list of birds collected within eight miles of Bathurst during a stay of 21 months, and the second Appendix (pp. 464–483) to Moloney's 'Sketch of the Forestry of West Africa' (1887), which contains a list of the species known from the river, with references to the literature, by Capt. Shelley.

The majority of the birds that I observed are included in these lists, but a certain number are wanting; nor did I meet with all those noted by Dr. Rendall; this, however, is easily explained by the situation of the districts which I explored.

In travelling up the river to my future headquarters, the island of M'Carthy, we generally kept close to one bank or the other, and thus had fair opportunities of observing the avifauna. In the lower reaches from Bathurst to Nianimaru impenetrable walls of mangroves line the shores and make it very difficult to obtain a view of the interior or to watch the birds. Frequently, however, large parties of Pelicans and Marabou-birds crossed our course, while at low water there often appeared dense flocks of Crested Cranes, which, upon our approach, sailed away with their long necks and unwieldly heads far outstretched, uttering their loud hoarse cries.

As we neared Nianimaru, about 100 miles up the river, we left the mangroves behind and could see the actual banks teeming with bird-life amongst the dense tropical vegetation of every description, which extended as far as our destination and remained luxuriantly green throughout

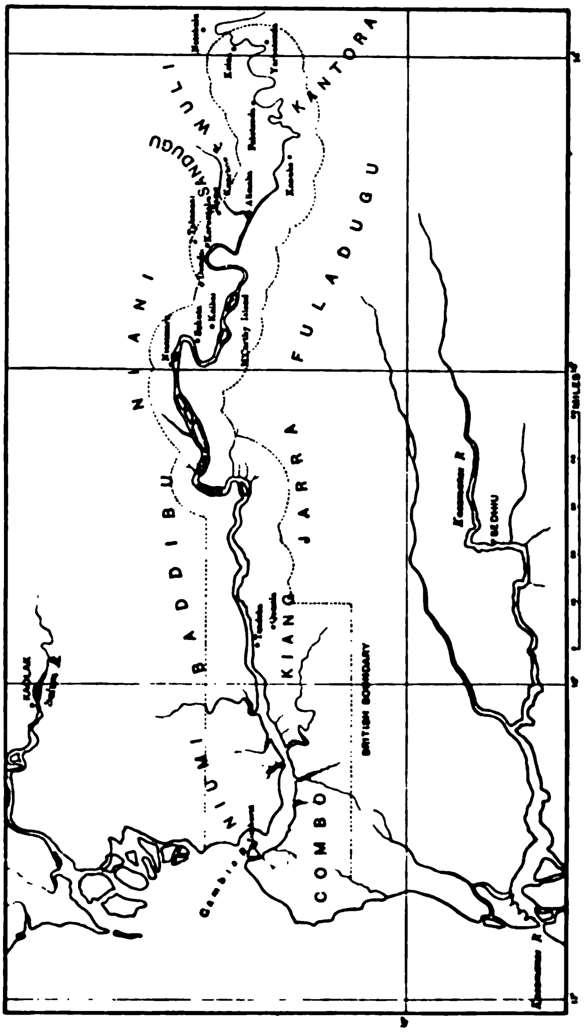


Fig. 31.

Outline Map of the Gambia River.

the year. The country farther inland is, in the dry season, somewhat sparsely covered with almost leafless trees, and there being little to attract the ornithologist in the scorchedup plains or the stony plateaux away from the river, my hunting-grounds were somewhat restricted. When we arrived at M'Carthy Island on Nov. 10th the dry season was just beginning, but the swampy plains were still covered with dense jungle, and the foliage of the forest-covered plateaux formed a rich contrast to the red cliffs as they caught the last rays of the setting sun, while vast flocks of Egrets, Ducks, and Green Pigeons flew overhead from their feeding-grounds. Even before reaching M'Carthy Island I was struck by the number of species of Rollers and Kingfishers seen, though it was impossible to identify them from the colonial steamer. From Nov. 11 to Nov. 24 I was fully occupied with other work, and could shoot only a few birds daily for food. These were usually Pigeons, Spur-winged Plovers, the so-called Bush-fowl (*Francolinus bicalcaratus*), the Sand-Grouse (*Pterocles quadricinctus*), or occasionally a Whistling Duck. Other species of frequent occurrence were the Palm-bird (*Lophoceros nasutus*), usually seen in parties of from three to five, which continually flew in undulating fashion from tree to tree uttering their monotonous high-pitched cry of three descending notes; two species of Parrots; enormous flocks of *Lamprocolius purpureus*; as well as groups of *Lamprotornis caudatus* and Wood-Hoopoes (*Irrisor senegalensis*), ranging from ten to thirty, which vied one with another in their deafening chatter. The flocks of the last-named generally contained twice as many females as males, the latter being easily distinguished by their brilliant red beaks. The Foolish bird (*Centropus senegalensis*), various Drongos and Shrikes, and Weaver-birds in vast numbers, completed the tale. In the early days of my stay I noticed the call of our British Redstart, of which I saw both males and females throughout the dry season. The Grey Flycatcher (*Muscicapa grisola*) was also common along the river-banks at that time.

On Nov. 24 I went down the river to Nianimaru, and thence travelled in company with the Commissioner of the District up the north bank as far as the Kunchow Creek, returning to M'Carthy Island on Dec. 20th. There was plenty of time for fishing and shooting, as we stayed at the important places for several days. The towns visited were Sukuta, Kaihai, Demfai, Tabanani, Same, and Koruntaba, most of them several miles from the river, as the natives almost always prefer to live in the higher country. On this trip I first became acquainted with the little flocks of the Long-tailed Shrike (*Corvinella corvina*), which were everywhere seen flying from bush to bush along the native roads, not in the least shy of our rather numerous string of porters and servants.

On reaching our destination we took up our quarters in native huts set aside for the Commissioner's special use, usually sharing them with the small Red-breasted Weaver-birds (*Lagonosticta senegala*), while in the trees overhead *Pycnonotus barbatus* reiterated its clear but plaintive little song. About the towns numbers of *Cryptorhina afra* acted as general scavengers. The males had brilliant red beaks, the females black. It was near Tabanani that I first saw perched on the top of some solitary tree-stump *Lanius auriculatus*, and also identified the Parrots previously noticed, viz. *Pœocephalus senegalus* in large flocks of over twenty, and *Palæornis docilis* in small parties. Here also I shot a number of the handsome green Pigeon (*Vinago waalia*), which never alights on the ground and feeds chiefly on young figs, the trees being literally crowded with the birds. In the gullies the noisy chatter of parties of some half-a-dozen Babblers (*Crateropus platycercus*) attracted my attention as they ran up the tree-trunks in search of insects, in Woodpecker fashion.

At Same, on the Kunchow Creek, while fishing with trammel-net and line, I had an opportunity of identifying the Kingfishers *Ceryle rudis*, *C. maxima*, and *Halcyon senegalensis*. The first-named afforded a most attractive spectacle as it poised itself in mid-air above its prey, with the neck and beak pointing downwards. Up and down the stream, skimming the surface as a Swallow does, flashed the gorgeous green, orange and crimson *Melittophaga bullocki*, while from the bushes along the banks came a noisy chatter that might have been made by monkeys, but which I soon learnt was uttered by parties of *Crateropus reinwardti.* On the neighbouring mud a solitary bird, marked like a Redstart but of the size of a Thrush, stealthily hopped along. A specimen was with difficulty bagged, and proved to be *Cossypha albicapilla.*

Much of the country hereabouts was of a varied nature, ranging from level plateaux covered with cane-brakes and small leguminous trees, to cultivated valleys nearer the towns, where the natives grow millet, maize, cotton, and ground-nuts ; here the soil was sandy, with only a solitary cotton-tree (*Bombax*), mahogany (*Kaia*), or fig-tree left standing. Nearer the river were level plains, flooded in the rainy season, where the natives plant a little rice.

As we came back through Koruntaba to the river-side, and thence to M'Carthy Island again, I noticed a new bird, the Piebald Crow (*Corvus scapulatus*), and shot a Heron (*Ardea melanocephala*), a large Eagle (*Aquila wahlbergi*), and a Harrier (*Circus macrurus*).

I went down to Bathurst for the new year, and there engaged two native fishermen, arriving at M'Carthy Island again on the 11th of January; thence, after a stay of eight days, I took my fishermen, cook, and nets down to Nianimaru for two weeks. A large number of the smaller birds were obtained at this time, including Shrikes, Woodpeckers, Bee-eaters, Honey-suckers, and Weaver-birds. All the Shrikes were found solitary or in pairs, except *Prionops plumatus,* which moved restlessly about the thickets of the stony plateaux in parties of a dozen. *Scoptelus aterrimus* was common here, though, unlike the large *Irrisor senegalensis,* it was always seen in pairs.

About this time the natives were burning the dead jungle on the lowlands, and I often watched with interest the enormous numbers of White Herons (*Ardea garzetta*) cautiously moving in front of the advancing flames and devouring the insects which were driven out of the grass by the heat of the fire. Above them twittered a vast number of *Merops nubicus,* literally showing a red cloud of wings as they greedily devoured the insects that attempted to escape by flight. This was the only Bee-eater observed in large flocks. I obtained many of the small Weaver-birds and Flycatchers during my fishing expeditions, while the canoe slid silently amongst the luxuriant vegetation of the little creeks; though sometimes we had to beat a hasty retreat, as, with a roar, a great cow hippopotamus splashed into the water ahead, warning us that it was dangerous to approach her young.

On Feb. 1st I returned to M'Carthy Island, as there was some apprehension of an invasion by a neighbouring chief, Jimba ma Joula, but the arrival of H.M.S. 'Alecto' caused him to change his mind.

During February and March I made several trips up and down the river, but got very little in the way of birds. The Harmattan winds, which were now at their worst, parched up all the vegetation, blowing sand and dust over everything and making life generally uncomfortable; the temperature at midday was always over 100° F., and often 106° F., though at night it became much cooler. At this time I procured specimens of *Buphaga africana*, no easy matter with a bird that clings so closely to the backs of cattle.

In the early part of March I shot a Cormorant which had all the markings of the very young *Phalacrocorax lucidus* described by Capt. Boyd Alexander (see Brit. Mus. Cat. B. xxvi. p. 351). I also obtained a fine specimen of *Musophaga violacea*, with the head and wing-patch of a particularly bright red. On the 24th of March I went down the river to spend a week at Quincla, on the south bank. Near that town there was a well, much used by the natives, under the moist shade of some mahogany-trees, and amongst the numberless birds that frequented it I first obtained *Oriolus galbula*, the uncommon *Pogonorhynchus vieilloti*, *Barbatula chrysocomis*, *Zosterops senegalensis*, and *Terpsiphone melanogaster*, remarkable in the males for a steel-blue crest and magnificent chestnut tail-streamers. One morning in the open plain I came across a large flock of *Glareola pratincola*, which had the peculiar habit of flying round for a minute or two and then settling quite close at hand, apparently trusting to its resemblance to the soil to escape observation. In the treetops overshadowing the town Pelicans and Marabou-birds build their nests, and at the end of March there were still some unfledged birds in them.

On April 1st I started in a cutter up the river from M'Carthy Island to stay for a short time at the Kunchow Creek. The voyage occupied two days, and as we anchored when the tide was ebbing, I had several opportunities of going ashore to shoot. I found Guinea-hens (*Numida meleagris*) very plentiful, as were also the Bush-fowl and the Sand-Grouse. Arriving at the mouth of the creek on April 3rd, I. rowed up it about a mile to Alimaka's wharf, where I had some huts built overlooking the river. At this time the air was everywhere heavily scented by the blossoms of a beautiful gardenia-like shrub, which teemed with various Sun-birds and Bee-eaters. The commonest Sun-bird met with here was *Nectarinia pulchella,* though I obtained three others. In the dense belt of forest by the river-side I saw several beautiful species of Flycatchers, and tried, without success, to obtain a specimen of *Elminia longicaudata. Parus leucomelas* was fairly common. About this time (April 10th) I first noticed the harsh cry of *Coccystes glandarius,* thenceforward very common. On leaving the Kunchow Creek, on a low mud-bank near its mouth I saw a large flock of *Œdicnemus senegalensis,* as a rule a solitary species.

On April 20th I joined company with two Englishmen who were on their way to inspect some gold-workings. We were taken up to Yarbutenda by a small steamboat, and thence we rowed up to Netebulu, in French territory, at the head of the navigable waters of the Gambia. After a stay of a few days, I parted from the Englishmen and made my way back overland towards M'Carthy Island. I stayed about a week at Koina, where antelopes and game of all kinds were very abundant, and there I succeeded in obtaining two good specimens of the beautiful blue Flycatcher, *Elminia longicaudata.* This bird is extremely active and restless, flitting from tree to tree and continually spreading out its tail like a fan. The male and female seem quite similar. *Bucorax abyssinicus* was also seen several times.

On May 4th I reached Fatotenda, where I stayed a day or two near a small lake much frequented by birds. I saw there black and white Ibises and several Spoonbills. Near Darsilami I noticed several flocks of about twenty Leona Nightjars (*Macrodipteryx longipennis*). The males with the elongated wing-feathers were rather more numerous than the females. They flew continually round and then settled on the ground at my feet. I reached my head-quarters on May the 11th, and then heard for the first time the call of a Cuckoo, the note of which resembled that of *Cuculus canorus*, but the bird I shot was *C. gularis*.

I now went down to Nianimaru for the last time (May 18th). The rainy season was just beginning, though unusually early. I obtained there *Halcyon chelicutensis* far away from the river, and my first Black-throated Weaver-bird (*Hyphantornis cucullatus*), which I afterwards found everywhere in thousands, building so closely in the large baobab trees (*Adansonia digitata*) that the grass-nests, with their entrances underneath, were not more than a foot or two apart. The Bee-eater, *Dicrocercus furcatus*, now seen for the first time, was abundant. *Platystira cyanea* was fairly common in the dense forest-growth at the water's edge; and *Pachyprora senegalensis* in the low bushes in the open. Honey-guides (*Indicator sparrmani*), perched on the tree-tops, were uttering a loud, melodious, but monotonous cry of two descending notes.

On June 1st I returned to M'Carthy Island, where I stayed during the rains until the end of July. The Secretary-bird was not unfrequently observed, and birds had generally begun to build. *Laniarius barbarus* makes a shallow nest of twigs, not unlike that of the Bullfinch, in rather obvious positions. There were now abundant in the swamps two brilliant Weaver-birds, *Euplectes franciscanus* and *E. oryx*; they both make round grass-nests with side entrances, attached to two or three of the stems of the tall swamp-grasses. *Vidua principalis* was fairly common, and I often watched the male hovering over the female, rapidly opening and shutting the long tail-feathers, causing them to assume at times the shape of a lyre. In the swamps I came across the floating nursery of *Limnocorax niger,* made of flat blades of grass neatly woven together.

As I was unable to bring home a complete collection of the birds that I shot, I carefully measured and described those of which I did not preserve skins, and in the list given below such are marked with an asterisk. Birds which were merely seen I have not included; most of them, however, belonged to well-known species *.

I have referred in my list to one or two kinds of Eagles identified from skins obtained on the south bank. These were shot by Mr. H. L. Pryce, the Travelling Commissioner of that district, who kindly allowed me to measure and take notes of them.

In identifying my descriptions I have received much assistance from Mr. A. H. Evans, while the skins were named for me at the British Museum by Capt. Shelley.

*RUTICILLA PHŒNICURUS (Lath.).

M'Carthy Island, February 19, 1899. Common in the early months of the dry season.

SYLVIA CINEREA Bechst.

Nianimaru, May 19, 1899. Common in the dry season.

COSSYPHA ALBICAPILLA (Swains.).

Nianimaru, February 28, 1899. Common, mostly in the thick bush.

CRATEROPUS PLATYCERCUS Swains.

Koruntaba, December 19, 1898. Common.

CRATEROPUS REINWARDTI Swains.

Kunchow Creek, December 17, 1898. Common near the river.

PARUS LEUCOMELAS Rüpp.

♂ ♀. Kunchow Creek, April 7, 1899. Common.

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* These included a Swallow, Wagtail, Hornbill, Snipe, Darter, several wading birds, and Ducks of various species. The last, though very frequently shot, were never identified.

Hedydipna platura (Hartl.).

♂. Nianimaru, February 22, 1899. Common.

Nectarinia pulchella (L.).

♂ ad. Quinela, March 26, 1899; ♂ jr., Kunchow Creek, April 7, 1899. Common.

Chalcomitra senegalensis (Hahn).

♂. Kunchow Creek, April 4, 1899. Rare.

Anthothreptes longuemarii (Less.).

♂. Nianimaru, January 22, 1899; ♀. Nianimaru, April 6, 1899. Fairly common.

Zosterops senegalensis Hartl.

Quinela, March 2, 1899. Common at this place.

Pycnonotus barbatus Gray.

Nianimaru, November 25, 1898. Very common.

Anthus gouldi Fraser.

Quinela, March 28, 1899.

Serinus icterus Bp.

M'Carthy Island, January 10, 1899. Common.

Hypochera ænea Hartl.

♂. Quinela, February 26, 1899. Common.

Vidua principalis (L.).

♂. M'Carthy Island, July 4, 1899. Fairly common at this time.

Quelea quelea (L.).

♀. Nianimaru, January 21, 1899. Common.

Estrilda cærulescens Vieill.

Nianimaru, February 21, 1899. Common.

*Estrilda phœnicotis Swains.

M'Carthy Island, February 20, 1899. Very common.

*Lagonosticta senegala (L.).

M'Carthy Island, February 20, 1899. Very common about the native huts.

Sitagra luteola (Licht.).

♀ juv. Nianimaru, February 21, 1899. Common.

HYPHANTORNIS CUCULLATUS Hartl.
♂ ad. Nianimaru, May 18, 1899; ♂ juv. Nianimaru, March 25, 1899. Very common in the rainy season.

LAMPROCOLIUS PURPUREUS (P. L. S. Müll.).
M'Carthy Island, January 9, 1899. Very common.

*LAMPROTORNIS CAUDATUS (P. L. S. Müll.).
M'Carthy Island, December 17, 1898. Very common.

BUPHAGA AFRICANA L.
M'Carthy Island, March 12, 1899. Common.

ORIOLUS GALBULA L.
♂ ♀. Quinela, March 27, 1899. Fairly common.

DICRURUS ATRIPENNIS Swains.
Nianimaru, May 21, 1899. Common.

DICRURUS AFER (Licht. sen.).
Demfai, March 17, 1899. Very common.

*CRYPTORHINA AFRA Sharpe.
M'Carthy Island. Very common. The males have red beaks, the females black; they act as scavengers.

*CORVUS SCAPULATUS Daud.
Tabanani, December 16, 1899. Common.

PRIONOPS PLUMATUS (Shaw).
Nianimaru, January 21, 1899; Kunchow Creek, April 5, 1899. Fairly common in small parties.

CORVINELLA CORVINA (Shaw).
Quinela, March 26, 1899. Very common in small parties.

LANIUS AURICULATUS (Müll.).
Tabanani, December 15, 1898 (young); Quinela, March 25, 1899 (young). Fairly common in the open.

LANIARIUS BARBARUS (L.).
M'Carthy Island, January 9, 1899. Common in thick bush.

DRYOSCOPUS GAMBENSIS (Licht.).
♂. Nianimaru, January 22, 1899. Common in thick bush.

Telephonus senegalus (L.).
Koina, May 1, 1899; Nianimaru, February 27, 1899. Common in the open.

Malaconotus poliocephalus (Licht.).
Nianimaru, January 20, 1899. Common.

Bradyornis pallidus (v. Müll.).
Demfai, March 17, 1899; Kunchow Creek, April 8, 1899. Common.

Hyliota flavigastra Swains.
Nianimaru, January 27, 1899. Common.

Pachyprora senegalensis (L.).
Quinela, March 27, 1899; Nianimaru, May 28, 1899. Common.

Elminia longicauda (Swains.).
Koina, May 2, 1899. Rare.

Terpsiphone cristata (Hartl.).
Nianimaru, May 30, 1899. Fairly common.

Platystira cyanea (P. L. S. Müll.).
♀. Nianimaru, May 21, 1899. Fairly common in the forest at the river-side.

*Muscicapa grisola L.
M'Carthy Island, February 19, 1899. Common in the early months of the dry season.

Hirundo lucida Verr.
Nianimaru, February 26, 1899. Common at this time.

Cypselus affinis (Frankl.).
M'Carthy Island, June 10, 1899. Common.

Macrodipteryx longipennis Shaw.
M'Carthy Island, May 8, 1899. Common, often in small flocks.

Scotornis climacurus (Hartl.).
Fatotenda, April 10, 1899. Solitary.

SCOPTELUS ATERRIMUS (Steph.).

Juv. Nianimaru, January 21, 1899. Fairly common in pairs.

*IRRISOR SENEGALENSIS Hartl.

Nianimaru, December 26, 1898. Very common in parties of twenty to thirty.

MELITTOPHAGUS PUSILLUS (Sharpe).

Nianimaru, January 10, 1899. Common, especially in the mangroves.

DICROCERCUS FURCATUS (Stanl.).

Nianimaru, May 19, 1899. Common.

MELITTOPHAGUS BULLOCKI (Vieill.).

Kunchow Creek, April 8, 1899; M'Carthy Island, April 12, 1899. Fairly common.

MEROPS NUBICUS Gm.

M'Carthy Island, January 8, 1899. Very common.

*HALCYON SENEGALENSIS (L.).

M'Carthy Island, December 21, 1898. Common. The specimen obtained had a totally red beak, but otherwise answered to the description of this species.

HALCYON CHELICUTENSIS Finsch & Hartl.

Nianimaru, May 18, 1899. Fairly common.

*CERYLE MAXIMA Gray.

♀. Kunchow River, December 16, 1899. Common.

*CERYLE RUDIS (L.).

♀. Kunchow River, December 17, 1899. Common.

LOPHOCEROS ERYTHRORHYNCHUS (Temm.).

Quinela, March 27, 1899. Common.

*LOPHOCEROS NASUTUS (L.).

M'Carthy Island. Common.

*EURYSTOMUS AFER (Lath.).

M'Carthy Island, May 18, 1899. Common. Frequently seen on trees at the river-side. Very noisy and quarrelsome at beginning of the breeding-season.

*CORACIAS CYANOGASTER Sharpe.
Tabanani, December 14, 1898. Fairly common.

*CORACIAS ABYSSINICA Gm.
M'Carthy Island, November 25, 1898. Common.

*CORACIAS NÆVIUS Daud.
M'Carthy Island, November 23, 1898. Common.

MESOPICUS GOERTAN (P. L. S. Müll.).
Quinela, March 29, 1899. Fairly common.

CAMPOTHERA PUNCTATA (Swains.).
Nianimaru, January 22, 1899. Fairly common.

BARBATULA CHRYSOCOMA (Temm.).
Quinela, March 27, 1899. Common.

MELANOBUCCO VIEILLOTI (Hartl.).
Quinela, March 29, 1899. One specimen seen.

POGONORHYNCHUS DUBIUS (Hartl.).
Nianimaru, February 25, 1899. Common.

INDICATOR SPARRMANI Steph.
Nianimaru, February 2, 1899. Common.

CHRYSOCOCCYX SMARAGDINEUS (Swains.).
M'Carthy Island, July 20, 1899. Rare; one specimen obtained.

*CUCULUS GULARIS Steph.
M'Carthy Island, May 11, 1899. Not heard or seen on the Gambia before this date after my arrival in November.

*COCCYSTES CAFER (Licht. sen.).
M'Carthy Island, June 14, 1899. Appeared first at this date.

*COCCYSTES GLANDARIUS (L.).
M'Carthy Island, April 1, 1899. Not noticed before this date.

*CENTROPUS ANSELLI Sharpe.
M'Carthy Island, December 2, 1898. Common all the year round. Though the specimen shot undoubtedly belonged to this species, *C. senegalus* was probably the most common form.

*Musophaga violacea Isert.
M'Carthy Island, March 10, 1899. Not very common.

*Schizorhis africana (Lath.).
M'Carthy Island, March 5, 1899.

Palæornis docilis (Vieill.).
M'Carthy Island, March 8, 1899. Very common.

*Pœocephalus senegalus (L.).
M'Carthy Island, December 7, 1899. Very common in flocks.

*Strix flammea L.
M'Carthy Island, June 13, 1899.

*Scops giu (Scop.).
Nianimaru, February 25, 1899. Common.

*Haliaëtus vocifer (Daud.).
Common. Identified from a skin obtained on the south bank.

*Lophoaëtus occipitalis (Daud.).
Not common. Also identified by means of a skin from the south bank.

*Circaëtus beaudouini J. Verr. et Des Murs.
M'Carthy Island, December 20, 1898.

*Aquila wahlbergi (Sundev.).
Koruntaba, December 19, 1898.

*Helotarsus ecaudatus (Daud.).
M'Carthy Island. Common.

*Falco ardesiacus Bonn. et Vieill.
M'Carthy Island, December 17, 1898.

*Circus macrurus (Gm.).
M'Carthy Island, December 16, 1898.

*Asturinula monogrammica (Temm.).
Nianimaru, November 25, 1898.

*Francolinus bicalcaratus(Linn.).
M'Carthy Island, February 2, 1899. Very common.

*ŒNA CAPENSIS (L.).

♂. Quinela, March 28, 1899; ♀. Tabanani, December 14, 1898.

*NUMIDA MELEAGRIS L.

Nianimaru, February 19, 1899. Very common.

*COLUMBA GUINEA L.

Nianimaru, January 10, 1899. Common.

*VINAGO WAALIA (Gm.).

Demfai, December 13, 1898. *V. calva* was, I think, equally common.

*CHALCOPELIA AFRA (L.).

M'Carthy Island, November 21, 1898. Very common.

*TURTUR SEMITORQUATUS (Rüpp.).

M'Carthy Island, November 23, 1898. Common.

*TURTUR VINACEUS (Gm.).

M'Carthy Island, December 18, 1898. Common.

*TURTUR SENEGALENSIS (L.).

M'Carthy Island, December 18, 1898. Common.

*BUTORIDES ATRICAPILLUS (Afzel.).

Nianimaru, January 23, 1899. Common.

*ARDEOLA RALLOIDES (Scop.).

M'Carthy Island, April 1, 1899. Common.

*GARZETTA GARZETTA (L.).

Nianimaru, February 27, 1899. Very common.

*ARDEA MELANOCEPHALA Childr.

Koruntaba, December 19, 1898. Common.

*SCOPUS UMBRETTA Gm.

M'Carthy Island, November 22, 1898. Very common.

*PTEROCLES QUADRICINCTUS Temm.

♂ ♀. M'Carthy Island, December 16, 1898. Very common.

*LIMNOCORAX NIGER (Gm.).

Nianimaru, February 26, 1899. Fairly common.

*Œdicnemus senegalensis Swains.

M'Carthy Island, February 2, 1899. Common.

*Sarciophorus tectus (Bodd.).

M'Carthy Island, March 12, 1899. Very common at this season.

*Lobivanellus senegalus (L.).

M'Carthy Island, November 13, 1898. Very common at this season.

Glareola pratincola (L.).

Quinela, March 29, 1899.

*Phalacrocorax lucidus (Licht.).

Juv. M'Carthy Island, March 5, 1899. Very common.

XXXVI.—*Proceedings at the Anniversary Meeting of the British Ornithologists' Union*, 1901.

The Annual General Meeting of the British Ornithologists' Union was held in the rooms of the Zoological Society of London, 3 Hanover Square (by permission of the Council of that Society), on Wednesday, the 15th May, at 5.30 p.m., Dr. F. DuCane Godman, F.R.S., President, in the Chair.

The minutes of the last Annual Meeting having been read and confirmed, the Report of the Committee was read. It stated that since the last Anniversary the Union had suffered the loss, by death, of two Ordinary Members (Mr. Philip Crowley and Mr. C. W. Wyatt), of one Honorary Member (Dr. Gustav Hartlaub), and of one Foreign Member (Baron de Selys Longchamps).

The number of the Members of the Union was stated to be 370, consisting of 342 Ordinary, 2 Extraordinary, 9 Honorary, and 17 Foreign Members. There were 13 candidates for the Ordinary Membership, and one (who had been removed under the operation of Rule 6, but under circumstances which had now been satisfactorily explained) for Re-election.

The Committee was glad to report that the prosperity of the Union had continued unabated during the past year.

The annual volume of 'The Ibis' for 1900, forming the sixth of the Seventh Series, had been issued in due course. It contained 728 pages and 14 plates.

The Report having been adopted, the accounts for the year, which had been audited by Mr. Howard Saunders, were presented by the Secretary, and approved by the Meeting.

Dr. F. DuCane Godman, F.R.S., was re-elected President, and Mr. Howard Saunders (in the place of Mr. E. W. Oates, who had retired) was elected Secretary, of the Union for the ensuing year. Mr. E. W. Oates was elected a Member of the Committee in the place of Dr. F. G. Penrose, who retired by rotation.

The following 13 Candidates were then balloted for and declared to be duly elected Ordinary Members of the British Ornithologists' Union:—James H. Allchin, 24 Bower Mount Road, Maidstone; Major Walter B. Arundel, High Ackworth, Pontefract; Herbert Ashby, Pinehurst, Basset, near Southampton; Lt.-Col. A. C. Bailward, R.F.A., 1 Princes Mansions, Victoria Street, S.W.; John C. Baker, M.B., B.A., The Mount, Witley, Surrey; Horace W. Finlinson, Goldington Avenue, Bedford; Herbert Goodchild, 119 Gloucester Road, Regent's Park, N.W.; Alwin C. Haagner, South African Constabulary, Modderfontein, S.A.; Collingwood Ingram, The Bungalow, Westgate-on-Sea; William K. Martin, B.A., Dartington, Totnes, South Devon; P. Chalmers Mitchell, M.A., 32 Devonshire Place, W.; John T. Proud, Dellwood, Bishop Auckland; David Seth Smith, Alleyne, Caterham, Surrey.

Mr. Arthur M. Laws, of Buluwayo, South Africa, was re-elected an Ordinary Member of the Union.

After a vote of thanks to the Council of the Zoological Society of London for the use of the Rooms, the Meeting adjourned.

The Annual Dinner, subsequently held at Limmer's Hotel, was attended by 29 Members, five of them being Original Members of the Union, viz. F. DuCane Godman, W. H. Hudleston, Alfred Newton, P. L. Sclater, and E. Cavendish Taylor.

XXXVII.—*Notices of recent Ornithological Publications.*

[Continued from p. 347.]

85. *Borchgrevink's 'First on the Antarctic Continent.'*

[First on the Antarctic Continent, being an account of the British Antarctic Expedition 1898–1900. By C. E. Borchgrevink, F.R.G.S. London, 1901: George Newnes. 1 vol. 8vo. 333 pp. Price 10*s*. 6*d*. net.]

We have already remarked on Mr. Borchgrevink's paper in the 'Geographical Journal' (see above, p. 154), which contained the first account of his Antarctic Expedition. We have now the full narrative before us, in which there are many further allusions to birds, a whole chapter being devoted to the Penguins. It is evident that Penguin's flesh and eggs supply in 'Antarctis' the fresh and welcome diet that bear's flesh gives to explorers in 'Arctis.' ***Eudyptes adeliæ*** is *the* Penguin of Victoria Land, and breeds there in enormous abundance. In half an hour 435 eggs were collected by members of the Expedition. Other birds nesting there were the Antarctic Skua and two Petrels—*Oceanites oceanicus* and *Pagodroma nivea*. But we shall know more about the birds when the collection (now at the British Museum) is worked out. Meanwhile Mr. Borchgrevink's field-notes are of much interest. But he (or his printer) should have taken the trouble to spell the scientific names more correctly.

86. *Chapman on the Genus* Sturnella.

[A Study of the Genus *Sturnella*. By Frank M. Chapman. Bull. Amer. Mus. Nat. Hist. xiii. pp. 297–320, 1900.]

Mr. Chapman has made a careful study of the Meadow-Starlings of the genus *Sturnella*, which range over North and Central America down to Colombia and Guiana. In the course of his researches he has examined 734 specimens. Like other forms that occupy a wide area, *Sturnella* is subject to considerable variations in colour and size, which have induced the author to recognise six local subspecies, besides the typical form of *Sturnella magna*. The vexed question of the relationship of the western *Sturnella neglecta* to *S. magna* *typica* is discussed at full length, and the complete intergradation of these forms in certain localities is conclusively shown.

87. *Chun on the German Deep-sea Expedition.*

[Aus den Tiefen des Weltmeeres: Schilderungen von der deutschen Tiefsee-Expedition. Jena: Gustav Fischer, 1900. 1 vol. 550 pp. Price 18*s*.]

This is a well-written and profusely illustrated popular account of the German Deep-sea Expedition of 1898-99, which can be thoroughly recommended to those who can read German. The route was by way of the Atlantic to nearly as far south as Enderby Land, and thence back by the Indian Ocean and the Suez Canal. The biology introduced into the work mostly refers to marine Invertebrates, but there are many allusions to sea-birds, especially to those of the Antarctic Ocean, and some excellent views of Penguins and their breeding-colonies in Kerguelen and other oceanic islands.

88. *Dwight on the Plumages of Passerine Birds.*

[The Sequence of Plumages and Moults of the Passerine Birds of New York. By Jonathan Dwight, Jr. Ann. N.Y. Acad. Sci. xiii. pp. 73-360, pls. i-vii., 1900.]

In this long paper Dr. Dwight has endeavoured to demonstrate the principles underlying the moult and change of plumage of birds, as evidenced by several thousands of examples of Passerine species from New York contained in his own collection. In the place of relying on theories, founded, as they often are, on unreliable information, he takes his stand on the firm basis of facts, which he warns us must be interpreted aright to be of the least value. There seems to him to have been hitherto no serious attempt to link together the successive plumages attained before maturity, and certainly no endeavour to group North-American birds according to their plumages; such grouping he therefore desires to effect. Accordingly he classifies them in ten sections, and subsequently gives full details for each species.

The methods of determining a bird's age and sex are, moreover, taken into consideration, while the sequence of the plumages is traced up to the second "prenuptial moult"; theories of colour-change are also reviewed, and out-of-door observations upon the moult and the subsequent migration are recorded. A bibliography and seven plates add to the value of this article.

89. *Fisher's Reminiscences of a Falconer.*

[Reminiscences of a Falconer. By Major Charles Hawkins Fisher. London, 1901. 8vo. Pp. i-xiv, 1-188. Price 10*s.* 6*d.* net.]

Major Fisher gives an interesting account of his experiences, and of the various amateurs and professionals whom it has been his fortune to meet in the pursuit of the above-mentioned sport. To the whole are prefixed essays from his own pen on the revival of Faconry and on modern Falconry, while a memoir of William Brodrick, one of the authors of 'Falconry in the British Islands,' is appended. More than half of the illustrations consist of portraits of devotees of hawking.

90. *Godman's 'Biologia Centrali-Americana.'*

[Biologia Centrali-Americana; or, Contributions to the Knowledge of the Fauna and Flora of Mexico and Central America. Edited by F. DuCane Godman. (Zoology.) Parts CLXI. & CLXII. 1901. (Published for the Editors by R. H. Porter, 7 Princes Street, Cavendish Square, W.]

In these two Parts of the 'Biologia,' pp. 89-128 of the letterpress of the third volume of the Birds are contained. They continue the account of the Diurnal Birds of Prey of Central America, and relate to the subfamilies Aquilinæ, Milvinæ, Micrasturinæ, Herpetotherinæ, Falconinæ, and Polyborinæ.

Good coloured figures are given of *Micrastur mirandollei*, *M. amaurus*, and *Falco deiroleucus*.

91. *Goeldi's 'Birds of Brazil,'* Vol. II.

[Monographias Brasileiras. E. Goeldi. As Aves do Brasil. Segunda parte. Rio de Janeiro, 1900. 1 vol. Pp. 311-664, and index.]

After waiting for some years (see 'Ibis,' 1895, p. 282) we are much pleased to receive a copy of the second and concluding part of our friend Dr. Goeldi's little book on the Birds of Brazil. It is essentially a popular compilation, but contains many remarks of great interest, the results of the author's personal observation, and will prove a most useful guide to the study of the birds of tropical America. We need hardly point out the enormous extent of the work still to be done before we can be fully acquainted with the birds of Brazil, and we trust that Dr. Goeldi's volumes may induce many of its inhabitants to take up the study of their country's avifauna.

92. *Grant on Additions to the List of Arabian Birds.*

[Further Additions to the List of Birds of Southern Arabia. By W. R. Ogilvie Grant. Nov. Zool. xiii. p. 54.]

Mr. Grant adds ***Amydrus tristrami*** and ***Rhynchostruthus percivali*** to the list of South-Arabian birds, from examples procured in Hadramaut by Mr. G. W. Bury. It is obvious that the former is identical with ***Amydrus hadramauticus*** of Lorenz and Hellmayr (J. f. O. 1901, p. 231), who have lately published a description of Mr. Bury's whole collection.

93. *Grinnell on the Birds of Kotzebue Sound.*

[Pacific Coast Avifauna. No. 1. Birds of the Kotzebue Sound Region, Alaska. By Joseph Grinnell. Published by the Cooper Ornithological Club of California. Royal 8vo. 1900.]

This memoir is the first of a series of publications issued by the "Cooper Ornithological Club" as papers meriting special consideration, their ordinary organ being 'The Condor.' It contains an account of the collection of birds and eggs made by Mr. Grinnell during an expedition to the district of Kotzebue Sound, in Northern Alaska, just below the Arctic Circle. The party left San Francisco in May 1898 and passed the following winter and spring in the interior, on the Kowak River, whence various excursions were made. Collections were gathered at all the points visited, and about 700 bird-skins and as many eggs were preserved.

Mr. Grinnell's field-notes on the birds met with are very full and of much interest. He has made 17 additions to the list of the birds of the district, amongst which is a new subspecies of *Lanius borealis*, which he proposes to call *L. b. invictus*, being apparently the western representative form. Other interesting species met with were *Somateria v-nigrum*, *Fratercula corniculata* (breeding in numbers on Chamisso Island), *Philacte canagica* with its eggs, *Aphriza virgata* in full breeding-plumage, and *Cyanecula suecica*, which appeared to be nesting.

After the field-notes follows a useful list of publications relating to the ornithology of Kotzebue Sound, and a "check-list" of the birds as yet ascertained to occur in the district—150 in all.

94. *Hall on the Distribution of Australian Birds.*

[The Distribution of Australian Birds.—Additional Records. By Robert Hall. Victorian Nat. xvii. pp. 59–63, 1900.]

Mr. Hall records a number of species additional to the areas 3, 6, 8, and 9 into which he has divided Australia in his "Key" to Australian birds. To the avifauna of area 9 (Western Australia) numerous additions are made.

95. *Hartert on the Birds of the Key Islands and Ceram-Laut.*

[On the Birds of the Key and South-east Islands and of Ceram-Laut. By Ernst Hartert. Nov. Zool. viii. p. 1.]

This is the first part of a review of the birds of the Key Islands, the South-east Islands between Key and Ceram, and of Ceram-Laut, an outlier of Ceram, based on collections lately transmitted to Tring by Mr. H. Kühn. After a description of the various localities and remarks on their physical conditions, the Pittidæ and Psittaci (14 species in all) are enumerated, with appropriate comments. Zoologically these islands all belong to the Moluccan subdivision of the Papuan Subregion, "having very few specially Papuan land-forms."

96. *Hartert on the Brehm Collection.*

[The Brehm Collection. By Ernst Hartert. Nov. Zool. viii. p. 38.]

It will be a satisfaction to all ornithologists to learn that the great collection of birds (some 10,000 specimens) formed by Christian Ludwig Brehm has found a resting-place in the Tring Museum. It has been "on sale" ever since the death of Brehm in 1861, and has remained packed up at Benthendorf, subject to the ravages of beetles, moths, and mildew. Now the labelled specimens will be carefully preserved and rendered available for scientific examination. Ornithologists may not at all agree with Brehm's notions of species and subspecies, but it is, of course, highly desirable that the types of his descriptions should be preserved, and every one will be alike grateful to Mr. Rothschild for having undertaken this serious task.

A critical examination of the Brehm Collection has been undertaken by Mr. Hartert and Herr Pfarrer Kleinschmidt, the results of which will be published in the 'Novitates Zoologicæ.' The present article contains the first of the series, which relates to forms of *Corvus corax*. Of these the authors recognise ten. Two of them are now provided with new subspecific names, viz. *Corvus corax canariensis* and *C. c. hispanus*. But of many previously named northern forms of the Raven (*C. sibiricus*, *C. ussurianus*, *C. kamtschaticus*, &c.), specimens have not yet been examined, so there are other subspecies to come!

97. *Hartert on Javan Birds.*

[Some Notes on Java Birds. By Ernst Hartert. Nov. Zool. viii. p. 49.]

After some preliminary remarks on the sources of our knowledge of the birds of Java, Mr. Hartert gives notes on ten species. In the course of them he separates from the typical forms *Tiga javanensis exsul* of Bali, *Sasia abnormis magnirostris* of Nias, *Aracnothera longirostris prillwitzi* of Java, and *Dicæum sollicitans* of Java.

98. *Loomis on Californian Water-birds.*

[California Water-birds. No. IV. Vicinity of Monterey in Autumn. No. V. Vicinity of Monterey in May and early June. By Leverett M. Loomis. Proc. California Acad. Sci. ser. 3, Zool. ii. nos. 3, 5, pp. 277-322, 349-363, 1900.]

We have now received some further numbers of Mr. Loomis's 'California Water-birds' (see 'Ibis,' 1897, p. 125), the subject being one to which, as it would appear, the author devotes special attention. Shearwaters travel south on the Monterey coast in enormous flocks. On Sept. 23rd not less than a quarter of a million "passed in review during two hours and a half." No. V. is devoted to the birds observed off Monterey in May and June. A fine adult male *Xema sabinii* was shot on May 12th.

99. *Macoun on Canadian Birds.*

[Catalogue of Canadian Birds. Part I. Water-birds, Gallinaceous Birds, and Pigeons. By John Macoun. 8vo. Ottawa, 1900. Pp. i-viii, 1-218. Price 10 cents.]

This catalogue, published by the authorities of Geological Survey of Canada, under the editorship of the late Dr. G. M. Dawson, contains not only a list of species, arranged according to the A. O. U. Check-list, but a considerable amount of information as to their distribution and habits. The two volumes of the complete work will treat of the birds of the whole Dominion, including those of Newfoundland, Greenland, and Alaska, and will be a most welcome addition to the scanty number of ornithological works referring to that portion of the globe. The author wishes his book to be practical and popular, but has taken care to make it also scientific, while he has gathered information from all possible sources, and has himself visited as many parts of the country as possible. Mr. W. Spreadborough has been retained to assist him with the same object in view, and various correspondents have been laid under contribution. The Orders treated in this Part are *Pygopodes, Longipennes, Tubinares, Steganopodes, Anseres, Herodiones, Paludicolæ, Limicolæ, Gallinæ,* and *Columbæ,* the specimens in the local Museum being duly noticed in their place.

100. *Martorelli on Dichroism in the Herons.*

[Nota Ornitologica sopra l'*Ardeola idæ* (Hartlaub) e cenno sul dicroismo di varii Ardeidi. Del socio Prof. Giacinto Martorelli. Atti Soc. Ital. Sci. Nat. xxxix. 1900.]

Prof. Martorelli shows that *Ardeola idæ* of Madagascar has a pure white as well as a coloured phase of plumage, and takes the opportunity of enumerating the other known cases in which this phenomenon, which he calls 'leucochroism,' has been found to exist in the Herons.

101. *Paddock on the Birds of Shropshire.*

[Catalogue of Shropshire Birds. By G. H. Paddock. 8vo. Newport, Salop: Lunn, 1897. Pp. 104.]

Though published so long ago as 1897, a copy of this list of the Birds of Shropshire has only lately reached us. It gives short notes on the distribution or occurrence of 231 species, and is prefaced by a very brief introduction on the character and scenery of the county.

102. *Palmer and Olds on the Game-Laws of the U.S.A.*

[Laws regulating the Transportation and Sale of Game. By T. S. Palmer and H. W. Olds. Bull. U.S. Dept. Agric. no. 14, 1900.]

The title of this work speaks for itself, and it is only necessary to add that, besides a digest of the various State Laws upon the subject, which are supplemented by an Act of Congress prohibiting the wrongful shipment of the birds, general discussions are given upon such subjects as close-seasons, partial protection, limited bags, and hunting-licences, with a section specially devoted to Big Game.

103. *Rothschild and Hartert's Notes on Papuan Birds.*

[Notes on Papuan Birds. By the Hon. Walter Rothschild and Ernst Hartert. Nov. Zool. viii. p. 55.]

After remarks on their views as to subspecies, and some interesting extracts from Doherty's letters about certain of the localities which he had visited, the authors discuss the Papuan Pittidæ and Psittaci, as illustrated by specimens recently received at Tring from the above-named collector and others. Seven Papuan Pittas are recognised, of which *P. mackloti aruensis* is a new subspecies. Ninety-five species and subspecies of Psittaci are reviewed, and the following forms are described as new subspecies:—*Pitta mackloti aruensis* from Wokan, *Lorius lory major* from Waigiu, *Trichoglossus hæmatodus intermedius* from Kaiser-Wilhelm's-Land, *Nasiterna salvadorii* from New Guinea, and *Eclectus pectoralis solomonensis* from the Solomons.

Many forms hitherto held to be good species are reduced to the rank of subspecies by the present authors' mode of treatment. In fact two categories of forms are recognised—(*a*) those with strong specific characters = *species*, and (*b*) those with slight or undecided specific characters = *subspecies*. The old notion, that subspecies were local forms between which intermediate forms were to be found, is entirely rejected. We fear that this system, if carried out, will lead to enormous alterations in nomenclature. Besides, in many cases, it is very difficult to decide whether a form should be treated as "species" or a "subspecies." There is, in fact, no rule on the subject. It is a matter of opinion.

104. *Salvadori on Birds from Patagonia.*

[Contribuzione all' Avifauna dell' America Australe (Patagonia, Terra del Fuoco, Isola degli Stati, Isole Falkland). Per Tommaso Salvadori. Ann. Mus. Civ. Stor. Nat. Genov. ser. 2, xx. pp. 609–634, 1900.]

In this paper we have an account of the collection of birds made by an Italian expedition in 1881–82, under the command of Lieut. Bove, in Patagonia, Tierra del Fuego, and the Falkland Islands. It contains 224 examples, referable to 79 species, and is now deposited in the Museo Civico of Genoa. Our most recent authority on this subject is Oustalet's List, in the sixth volume of the 'Mission Scientifique du Cap Horn' (1891), and the author here follows Oustalet's arrangement. The species are mostly well known, but two of them, *Phrygilus princetonianus* and *Geositta brevirostris*, have only recently been described by Mr. Scott, and two others (*Thinocorus orbignyanus* and *Spermophila cærulescens*) are new to the Patagonian list, while ***Falco cassini***, ***Agriornis leucura***, and ***Zenaida auriculata*** are likewise of interest.

105. *Salvadori on Birds from Portuguese Guinea.*

[Uccelli della Guinea Portoghese raccolti do Leonardo Fea studiati da Tommaso Salvadori. Ann. Mus. Civ. Stor. Nat. Genov. ser. 2, xx. pp. 749-790, 1901.]

Comparatively little work has been done with regard to the birds of "Portuguese Guinea" (which would be more properly called Portuguese Senegambia, as it is far away from what is generally known as the Guinea Coast), although the Maison Verreaux had once an active correspondent at Bissao, after whom ***Circaëtus beaudouini*** was named. Count Salvadori now writes on a collection formed in this district by the well-known Italian traveller Fea. It contains 410 specimens, which are referred to 146 species. Amongst these is a new Honey-guide (***Indicator feæ***) and a new Bulbul (***Turdinus puveli***). ***Laniarius turatii*** was known previously only by the typical specimen in the Turati Museum at Milan, and the European Wryneck (***Iynx torquilla***) had not previously been recorded from so far south.

106. *Seebohm's 'Monograph of the Thrushes.'*

[A Monograph of the Turdidæ, or Family of Thrushes. By the late Henry Seebohm. Edited and completed (after the Author's death) by R. Bowdler Sharpe, LL.D., F.L.S., &c. Part XI. Imperial 4to. London: Henry Sotheran & Co., 1901. Price 30s.]

This posthumous work of our much-esteemed friend and associate is now nearing completion. The 11th Part contains excellent coloured figures of the following species:—

Merula celebensis.
—— javanica.
—— vitiensis, ♂ et ♀.
—— layardi, ♂ et ♀.
—— viniticta.
—— xanthopus.
Merula mindorensis.
—— cardis.
—— reevei.
—— unicolor.
—— aurantia.
—— nigriceps.

In spite of the efforts of several skilful authorities, the exact identification of Horsfield's ***Turdus javanicus*** appears still to remain uncertain, no specimens actually agreeing with Horsfield's types having been since obtained. The higher peaks of Java require further examination by some enterprising ornithologist.

107. *Seebohm's 'Birds of Siberia.'*

[The Birds of Siberia: a Record of a Naturalist's Visits to the Valleys of the Petchora and Yenesei. By Henry Seebohm. London, 1901. 8vo. Pp. i-xix, 1-504. Price 12*s*. net.]

This volume consists of a reprint, with certain alterations, of the two well-known volumes by our much-deplored friend the late Henry Seebohm, which gave accounts of his journeys to the Petchora and Yenesei Rivers in 1875 and 1877 respectively.

The Editor—in whom we recognise a well-known naturalist and fellow member of our Union—has carried out his somewhat difficult task with great ability, retaining almost untouched the nomenclature and ornithology of the original work, while omitting passages here and there which seemed unnecessary to a combined edition, or in which the information had been superseded on more accurate observation. In particular many long footnotes on geographical distribution have been left out, as well as certain claims to priority, which the author himself would, no doubt, have withdrawn had he lived to carry out his intention of personally superintending the reissue of his work. Russian phrases, moreover, are translated with greater correctness, while words in that language are printed in the ordinary way, and no longer have the syllables disconnected by hyphens.

It is not, however, for the ornithological portions alone that we gladly welcome this book in its new form, but also for the excellent idea it gives of the character of the country and of its people; the description of the breaking up of the ice on the Petchora in particular being a most admirable account of a phenomenon seldom witnessed by Europeans.

Attention has duly been drawn by the Editor to the discovery of the nest and eggs of the Curlew-Sandpiper by

Mr. Popham, but room might have been found to refer at least to those of the Bar-tailed Godwit and Pomatorhine Skua, as found by the same gentleman on the Yenesei.

The well-known illustrations of the original work have been retained, and a useful map has been added to show the route taken upon each journey.

108. *Sharpe's Edition of White's 'Selborne.'*

[The Natural History and Antiquities of Selborne and a Garden Kalendar. By the Reverend Gilbert White, M.A. Edited by R. Bowdler Sharpe, LL.D., with an Introduction by the Very Reverend S. Reynolds Hole, Dean of Rochester, and numerous Illustrations by J. G. Keulemans, Herbert Railton, and Edmund J. Sullivan. In two volumes. 1900. London: S. T. Freemantle. Price £3 net.]

More than one hundred editions of the 'Natural History and Antiquities of Selborne' have now been issued, and it has become a serious question whether further additions to the list are desirable, especially as the more modern editions show in certain cases little if any improvement upon the old. Nevertheless, the present sumptuous volumes, with their clear print and profuse illustrations, will undoubtedly prove acceptable to the wealthy naturalist, though the true lover of Gilbert White will perforce be obliged to regret that the impossibility of obtaining a genuine portrait of the author has induced the publisher to insert such lamentable caricatures in its place as are to be found in some of the pictures. For this, however, as things stand at the present day, the Editor can hardly be held liable, and we are grateful to Dr. Sharpe for extending his researches to White's original letters preserved in the British Museum, and for restoring the passages which relate to the birds of Gibraltar sent home by his brother John White. These were naturally omitted by the author, after due consideration, as being unsuitable to a Natural History of his own district, but none the less are they of great interest to us of a later day, while they serve to demonstrate his wide grasp of ornithological subjects.

The Editor is careful to note where discrepancies occur between the published texts and the manuscripts, especially where White himself has thought good to divide a letter into two portions or has joined two letters together, where he has added new matter, and where a letter is undated or does not agree with the date usually accepted. In the last case it may be suggested that the date in the manuscript may denote when the letter was actually written, and the date published when the letter was finally despatched—a very different matter in those days of difficulty of communication.

Dr. Sharpe has done wisely to give frequent excerpts from the notes in the well-known editions of Jardine, Bennett, Harting, and Bell, the more so as the last-named had access to many private family documents.

The Editor spent several weeks at Selborne in preparation for his work, and in some cases obtained further information from the members of the White family. We hardly think, however, that a Fellow of Oriel and a Proctor of his University should be represented as so much of a recluse, and we could wish that some really capable person had been selected to annotate the "Garden Kalendar," now printed for the first time. Dean Hole, moreover, might have employed his well-known talents to much better purpose than he has done in the Introduction to the same.

Two facsimiles of letters by Gilbert White give pleasing evidence of his skilful penmanship, while Appendices on the Geology by Mr. Andrews and on the Bibliography by Mr. Sherborn are welcome additions to our knowledge of those subjects.

109. *Shelford on the Museum of Sarawak.*

[Report on the Sarawak Museum. By R. Shelford, B.A., Curator of the Sarawak Museum. February, 1901. Pp. 1–31.]

This report on the Sarawak Museum gives a good account of the progress of the institution under its present curator, who is well known to us by his letters and papers. In reference to birds, he tells us of seven species to be added to the Bornean avifauna—*Cotile riparia, Hirundo striolata, Pratincola maura, Polyplectron bicalcaratum, Lepterodius* *asha*, *Spatula clypeata*, and *Fuligula cristata*. Two specimens of the rare Snipe-billed Godwit (*Macrorhamphus taczanowskii*), killed in Borneo, are in the collection. The typical specimens of two species of *Philentoma* (*P. maxwelli* and *P. saravacensis*), described by Mr. E. Bartlett, the former curator, have been examined and referred, the first to *P. pyrrhopterum* and the second to *P. velatum*. A list of birds' eggs and birds' nests in the Museum is given, containing those of 55 species.

110. *Shufeldt on the Osteology of the Woodpeckers.*

[On the Osteology of the Woodpeckers. By R. W. Shufeldt. Proc. Amer. Phil. Soc. xxxix. pp. 578-622.]

Dr. Shufeldt here gives us his views upon the relationships of the Woodpeckers, as formed from the examination of the bones of all the genera found in North America, with due reference to those absent from the fauna of that country. The skull is considered separately from the remainder of the skeleton, and several illustrations are added as an assistance to the understanding of the text. The author agrees with many writers in considering the *Pici* as nearly akin to the *Passeres*, *Picumnus* forming a connecting link; and he thinks that the two groups have diverged from a common stock, though the former have become highly specialized and much modified. In short, his remarks are hardly of a novel nature, and it is for the wealth of anatomical detail that the paper is chiefly remarkable.

111. *Shufeldt on the Osteology of the* Striges.

[On the Osteology of the *Striges* (*Strigidæ* and *Bubonidæ*). By R. W. Shufeldt. Proc. Amer. Phil. Soc. xxxix. pp. 665-722.]

This paper, with its full technical details, may be regarded as an expansion of a former memoir by Dr. Shufeldt on *Speotyto*, to which, however, so many additions have been made that it now presents a very general view of the comparative osteology of the Owls of America, every genus and nearly every species having been carefully examined. The opinions of other writers are, moreover, taken into consideration. The conclusions at which the author arrives are that the Owls show no special relationship to the Accipitres, but are allied remotely to the Caprimulgi; that to the latter *Strix pratincola* approaches most nearly, with *Asio wilsonianus* next in order; and that *Speotyto, Surnia,* and *Micropallas* are somewhat closely inter-related. The families *Strigidæ* and *Bubonidæ* are accepted for *Strix* and the remaining forms respectively. Most of the text-figures and all those on the plates are new.

112. *Shufeldt on the Sand-Grouse.*

[On the Systematic Position of the Sand-Grouse (*Pterocles: Syrrhaptes*). By R. W. Shufeldt. American Naturalist, xxxv. pp. 11-16, 1901.]

The author agrees with Sclater and others, who assign to the Sand-Grouse an intermediate position between the *Galli* and the *Columbæ*, and place them in a Suborder Pterocletes with the single family *Pterocletidæ*. He has examined bones of *Syrrhaptes paradoxus* and entire skeletons of *Pterocles arenarius*, one of the latter being figured. The skull, with its Tetraonine characteristics, forbids the inclusion of these birds in the Columbæ, while the Columbine sternum and pectoral limb equally oppose their classification with the Galli.

113. *Stejneger on the Wheatears of North America.*

[On the Wheatears (*Saxicola*) occurring in North America. By Leonhard Stejneger. Proc. U.S. Nat. Mus. xxiii. p. 473.]

It is here sought to prove that there are two forms or subspecies of the Wheatear which occur in North America, one in the North-east and the other in the North-west. The larger form (*Saxicola œnanthe leucorrhoa*) breeds in Greenland and in the adjacent parts of N. America, migrating to Western Europe and West Africa. The smaller (*S. œnanthe typica*) breeds in Alaska and migrates into Eastern Asia. Lord Clifton (Ibis, 1879, p. 368) has already called attention to the fact that examples of both these forms occur on the south coast of England.

114. *Stuart Baker on Indian Ducks.*

[Indian Ducks and their Allies. By E. C. Stuart Baker, F.Z.S. Bombay Natural History Society's Journal, 1898–1900.]

Mr. Stuart Baker has kindly sent us a complete copy (provided with a new titlepage) of his series of papers on the Indian Anatidæ and their allies, which have appeared during the past two years in the 'Journal of the Bombay Natural History Society.' They contain a good account of the species of this favourite group and many excellent field-notes, the results of the author's long experience in India. A series of coloured plates, drawn by Keulemans, illustrate the following species:—*Cygnus olor*, *C. minor* (i. e. *C. bewicki*), *Anser albifrons*, *A. indicus*, *Dendrocycna fulva*, *Eunetta falcata*, *Nettion albigulare*, *Marmaronetta angustirostris*, *Nyroca baeri*, *Erismatura leucocephala*, and *Merganser serrator*. We are not surprised to see that the author refuses to follow the British Museum Catalogue in separating "*Merganser comatus*" from *M. castor*.

In a postscript Mr. Stuart Baker allows that, so far as we know at present, *Cygnus bewicki* has never occurred in India.

115. *Zoological Address-Book.*

[Zoologisches Adressbuch—Namen und Adressen der lebenden Zoologen, Anatomen, Physiologen, und Zoopalaeontologen, so wie der künstlerischen und technischen Hülfskrafte. Teil ii. enthaltend die seit September 1895 eingetretenen Veränderungen (Todesfälle, Ergänzungen, Adressenänderungen). Herausgegeben im Auftrage der deutschen zoologischen Gesellschaft von R. Friedländer & Sohn. Berlin, 1901. 1 vol. 8vo. 518 pp. Price 6s.]

Messrs. Friedländer and Son have kindly sent us a copy of the recently issued Supplement to the Zoological Address-Book of 1895, a most useful publication, with which most of our readers are, no doubt, well acquainted. The Supplement carries on, augments, and corrects the information contained in the original volume with matter that has accumulated during the past five years. That it is free from errors and omissions no one would venture to assert, but when we consider the difficulty of obtaining the exact names and addresses of the zoologists scattered over the whole of the civilized world, and of ascertaining the composition of the staffs of the numerous museums, academies, and other scientific institutions, it is a matter of wonder that the task has been so well performed. The Address-Book has the further merit of being legibly printed and of being sold at a price which renders it accessible to the "working man."

XXXVIII.—*Letters, Extracts, Notices, &c.*

We have received the following letters, addressed to "The Editors":—

Sirs,—I have the great pleasure to record the finding of two nests and eggs of the Honey-Buzzard (*Pernis apivorus*) in Somersetshire in May 1897 and May 1899 by Mr. Charles E. Nipper, of Axbridge, Somerset. The first nest was discovered at an isolated spot called Callow Rocks, and contained four eggs. The second nest was found on the highest point of the Mendips, Blackdown, and this also contained four eggs.

Both nests were rudely constructed, the first being half-way down a precipitous cliff and the second amongst some boulders on the ground.

In each case the female bird was seen and recognised as the Honey-Buzzard.

Yours &c.,
St. Albans, Herts, W. Percival Westell, M.B.O.U.
March 14th, 1901.

Sirs,—In the April number of 'The Ibis' for this year, p. 227, there is a remark about Waikthlatingmayalwa in the Great Chaco being the most southern locality where *Formicivora strigilata* has been found. This statement is not quite correct, as the species had already been noticed from San Lorenzo, in the Argentine province of Jujuy, where it was obtained by Dr. Borelli [Boll. Mus. Tor. N. 292 (1897), p. 22; N. 378 (1900), p. 9]. In the latter reference the same species is mentioned also from Urucum, in Matto Grosso, another new locality.

Yours &c.,
T. SALVADORI.

Turin, Zool. Mus.,
20th April, 1901.

SIRS,—In the last issue of 'The Ibis' (above, p. 355) Mr. Abel Chapman says that since 1895 I have not afforded "any further information as to the Pelicans that visit the Jutland coast," and that he has looked in vain for any evidence that I have "even tried to solve this interesting question." Mr. Chapman must have overlooked my note in 'The Ibis' for 1899, p. 658, and also my reply to Herr O. Haase in the 'Ornithologische Monatsbericht' for 1899, p. 173. So I may be permitted now to state again that only negative evidence is accumulating, in spite of much inquiry. In the spring of 1898 I revisited the spot, Ringkjøbing Fjord, that I had already visited in 1881—this time in company with Dr. Rambusch; but no traces of Pelicans were to be seen, nor could the birds be heard of. Dr. Rambusch has for several years been engaged in a study of the history of Ringkjøbing Fjord, both natural and agricultural; he has visited it repeatedly, and has been in communication with a number of men knowing the Fjord exceedingly well; but although he is especially interested in birds, he has not succeeded in getting any information as to the Pelicans, as may be seen from his book 'Studies on Ringkjøbing Fjord' (Copenhagen, 1900, 8vo). Regarding the occurrence of *Pelecanus crispus* in Jutland in the Stone-age, a new work may be consulted: 'Affaldsdynger fra Stenalderen i Danmark' (Copenhagen, 1900, 4to, pp. 110 & 185).

I may venture to remind your readers that collecting on the Royal domain of Ringkjøbing Fjord is now prohibited, the birds being strictly preserved (see note from the Danish Minister, 'Ibis,' 1898, p. 181).

Yours &c.,
HERLUF WINGE.

Universitets Zool. Museum,
Kjøbenhavn.

Sirs,—An Ivory Gull (*Pagophila eburnea*) was obtained on or about the 7th of February 1901, at Weston-by-Weedon, Northamptonshire, where it was found in a ditch by a dog and was shot as it rose. It is in immature plumage, and has the face grey, black marks on the wings, and a blackish bar on the end of the tail.

Yours &c.,
O. V. Aplin.

Bloxham, Oxon,
6th May, 1901.

Sirs,—On the 10th of May 1901, when Mr. Gregory Haines and I were on the top of one of the highest mountains in Merionethshire, on which some patches of snow still lingered, we saw four Dotterels (*Eudromias morinellus*). They were running about on a slope of very short herbage thickly scattered over with large stones, and were wonderfully tame, letting us come within ten yards of them. We might easily have overlooked them had not their rarely uttered low twittering whistle close at hand attracted our attention. They ran before us, keeping not more than ten yards ahead, occasionally stopping to pick up food, to chase one another, either in play or anger, or to stretch out a wing in characteristic fashion, until they arrived at the edge of a band of large rounded boulders, about fifteen yards wide, over which they seemed unwilling to run. There they stopped and faced us, and as we walked to within four paces of them and stood and discussed their beauty, gave us one of the greatest treats in the way of bird-life we had ever enjoyed; every detail of the Dotterels' plumage and the expression and glitter of their eyes were plain to us. In a few minutes the little birds rose, flew quickly over the boulders, and settled immediately on the other side, where we left them, hoping that, despite the bitter cold, which almost froze our fingers, one of these alpine slopes might tempt them to stay and breed. Two of the birds were in the finest of plumage; one was duller and lighter, and had broad yellowish feather-edgings; the fourth was intermediate between the two stages. The Dotterel might easily escape notice on some of the less famous Welsh summits, where hardly anyone but an occasional shepherd sets foot; for they are the quietest of all our Plovers. The birds we saw hardly ever uttered their low "twiddle, twiddle, twiddle," except when they took wing for a few yards. The little we know about the presence of the Dotterel on the Welsh mountains, or of its real or presumed absence from them, may perhaps excuse the length of this letter.

Yours &c.,
O. V. APLIN.

18th May, 1901.

SIRS,—So far as I am aware, the Bar-tailed Godwit (*Limosa lapponica*) is not known to migrate further south in Africa than the Gambia on the west and Somaliland on the east. I have recently obtained some evidence to show that it passes far beyond these limits.

Lieut. R. B. Bridgeman, of H.M.S. 'Partridge,' called upon me a short time ago bringing with him some drawings and photographs of birds that he had recently shot at Durban and elsewhere. Amongst these was a sketch of what is apparently a Bar-tailed Godwit. The bird was shot in Durban harbour, and was identified as above by Capt. Hunt of the 'Partridge'*. It was also compared with an Indian example of that species in the Durban Museum and found to be similar, but unfortunately the specimen was not preserved.

Yours &c.,
W. L. SCLATER.

South African Museum, Capetown,
May 15th, 1901.

SIRS,—Dr. L. v. Lorenz and Herr C. E. Hellmayr have lately described (J. f. O. 1901, pp. 230–245) a collection of birds made by Mr. G. W. Bury, near Yeshbum, about 150 miles N.E. of Aden. After carefully reading their report and comparing the descriptions with Arabian specimens in the British Museum, I have no hesitation in saying that most, if not all, of the forms characterized as new have no claim to even subspecific rank.

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* [*Cf.* Lieut. Bridgeman's letter to 'The Field' of June 15th (vol. xcvii. p. 884).—EDD.]

Mr. Bury also forwarded specimens of a few birds to Mr. A. B. Percival, who has presented them to the British Museum. Among these was an example of the fine new species, *Rhynchostruthus percivali* (see Nov. Zool. viii. p. 54).

The species described as new by Dr. v. Lorenz and Herr Hellmayr are the following:—

1. Amydrus hadramauticus (op. cit. p. 231).

A pair of the specimens collected by Mr. Bury at Yeshbum was forwarded to me through Mr. Percival. They agree perfectly with typical examples of *A. tristrami*, which was known to leave Palestine in the cold weather, but its winter-quarters were unknown till Mr. Bury met with it in S. Arabia (*cf.* Grant, Nov. Zool. viii. p. 54, February 1901).

2. Ædemosyne orientalis (op. cit. p. 232).

Messrs. Lorenz and Hellmayr separate the eastern form of *Ædemosyne* from the western, reserving for the latter the name of *Æ. cantans* (Gmel.).

Fringilla cantans Gm. was founded on the "Brown Grosbeak" (*cf.* Brown, Ill. Zool. p. 66, pl. xxvii. fig. 2). Brown gives no locality, but his figure obviously agrees with adult birds from Arabia and Abyssinia, having the upper parts distinctly barred. Gmelin (*ex* Latham, Gen. Syn. ii. pt. 1, p. 157) gives the locality as Africa. Even allowing that the West African form differs slightly in having the back less barred (though this character is variable), there is no reason for assuming, as Messrs. Lorenz and Hellmayr do, that Gmelin's name *Æ. cantans* refers to the West African form. Brown's figure, quoted above, suggests the reverse. The Arabian specimens named *Æ. orientalis* by Lorenz and Hellmayr are obviously immature. Fully adult birds from Arabia and Abyssinia have the chin and throat coloured as in birds from the west, but in the latter the barring on the upper parts is generally more obscure.

3. Passer domesticus buryi (op. cit. p. 233).

The Sparrow found in Arabia is, in my opinion, typical *P. indicus.* It is a well-known fact that *Passer domesticus* merges gradually into *P. indicus,* and for this reason Dr. Sharpe has united them under the former name (Cat. Birds, xii. p. 307). It is not the case that examples from Arabia differ from Indian birds, unless we compare Arabian birds in winter plumage with Indian birds in summer plumage, or the reverse.

4. Fringillaria tahapisi capistrata (op. cit. p. 235).

F. capistrata, described from "Kafferland," is undoubtedly synonymous with *F. tahapisi,* Gray, and was apparently founded on a specimen in worn plumage with the chestnut edges to the wing-feathers worn off. The occurrence of *F. tahapisi* in Arabia is interesting, if the identification is correct. The only species, however, met with in the country by the Percival-Dodson expedition was *F. striolata* Licht.

5. Zosterops arabs (op. cit. p. 236).

All the differences mentioned in the description are to be found in our series of *Zosterops abyssinica.* The unsexed types of *Z. arabs* are probably females, which would account for their paler colouring; from the measurements given the Yeshbum birds are not smaller than typical examples of *Z. abyssinica.*

6. Nectarinia muelleri (op. cit. p. 237).

This species is said to be chiefly distinguished from *N. metallica* by having the head, back, and throat dark steel-green, instead of bronze-green.

It is a well-known fact that with wear and exposure metallic green feathers become bronze or purplish. The Arabian birds are, in my opinion, absolutely identical with those from N.E. Africa.

7. Lanius buryi (op. cit. p. 238).

It is necessary to have devoted special attention to the Grey Shrikes to appreciate the difficulty of the group and the unadvisability of adding to the already overburdened synonymy of *Lanius fallax*.

8. Pycnonotus reichenowi (op. cit. p. 241).

Messrs. Lorenz and Hellmayr, in their anxiety to make new species, seem to have overlooked the fact that *P. xanthopygus* was originally described from Arabia. As a matter of fact, examples from S. Arabia, of which we have many, are perfectly similar to specimens from Somaliland and other parts of N.E. Africa.

9. Columba livia schimperi (op. cit. p. 244).

It is extremely doubtful whether *C. schimperi* is really separable from *C. intermedia*. Many Indian examples determined by Count Salvadori as *C. intermedia* are, in my opinion, indistinguishable from typical *C. schimperi*.

Yours &c.,
W. R. Ogilvie Grant.

British Museum (Natural History),
May 3rd, 1901.

The Library of the late Mr. Philip Crowley.—The sale of the Library of our late friend and associate took place at Mr. J. C. Stevens's Rooms at King Street, Covent Garden, on the 15th of April last. The chief "bird-books" were sold at the following prices:—

Blaauw's 'Monograph of the Cranes,' £5 10*s*.; Booth's 'Rough Notes on British Birds,' 3 vols., £25 4*s*.; Buller's 'Birds of New Zealand,' 2nd edition, 2 vols., £6 7*s*. 6*d*.; 'Catalogue of Birds in the British Museum,' 27 vols., £48; Dresser's 'Birds of Europe,' 9 vols., £56; Dresser's 'Monograph of the Bee-eaters,' £4 4*s*.; Elliot's 'Monograph of the Grouse,' £6; Elliot's 'Monograph of the Ant-Thrushes,' £4 10*s*.; Elliot's 'Birds of N. America,' £9; Elliot's 'Monograph of the Hornbills,' £7; Elliot's 'Monograph of the Birds of Paradise,' £6; Elliot's 'Monograph of the Pheasants,' 2 vols., £53 11*s*.; Gould's 'Birds of Asia,' 7 vols., £51; Gould's 'Monograph of the Toucans,' £6; Gould's 'Birds of New Guinea,' 5 vols., £45; Gould's 'Century of Birds from the Himalaya Mountains,' £5 10*s*.;

Gould's 'Birds of Great Britain,' 5 vols., £49 7*s.*; Gould's 'Monograph of the Trogons,' 2nd edition, £3 3*s.*; Gould's 'Icones Avium,' £8; Gray's 'Genera of Birds,' 3 vols., £17 17*s.*; 'The Ibis,' 1859-1900, £75; Lilford's 'Birds of the British Islands,' 7 vols., £63; Lilford's 'Birds of Northamptonshire,' £6 7*s.* 6*d.*; Marshall's 'Monograph of the Scansorial Barbets,' £3 15*s.*; 'Proceedings of the Zoological Society of London,' 1830-1900, £60; Rothschild's 'Avifauna of Laysan,' £5; Sclater and Salvin's 'Exotic Ornithology,' £6; Seebohm's 'History of British Birds,' 4 vols., £4 4*s.*; Sharpe's 'Monograph of the Kingfishers,' £8 15*s.*; Shelley's 'Monograph of the Sun-Birds,' £4 15*s.*; 'Transactions of the Zoological Society of London,' vols. i., vi. to xiv., and xv. pts. 1-4, £8 10; Yarrell's 'History of British Birds,' ed. 4, 4 vols., £5 5*s.*

The Intestinal Tract of Birds.—At the Linnean Society's meeting on the 21st of March last, Mr. P. Chalmers Mitchell, F.Z.S., read a paper entitled "The Anatomy and Morphology of the Intestinal Tract in Birds; with Remarks on the Nomenclature and Valuation of Zoological Characters." He described the various conformations of the intestinal tract in birds, his material consisting of many hundreds of specimens belonging to all the living *Ratitæ* as well as to all the Orders and Suborders and nearly all the Families of *Carinatæ*. He discussed the morphology of the tract, distinguishing, in their adult anatomy and in their relation to the embryonic metamerism, the duodenum, Meckel's tract, and the rectum. He described the nature and distribution of the changes in these organs and in Meckel's diverticulum and the colic cæca, and gave an account of a remarkable and hitherto undescribed series of nervous structures belonging to the autonomic nervous system, apparently peculiar to birds. In discussing the relation of the series of facts described to the Systems of Avian classification, he insisted on the primary necessity of valuing characters as Archicentric or Apocentric, primitive or specialized. A common possession of a character in either the Archicentric or Apocentric condition was no indication of systematic affinity. Amongst Apocentric characters he distinguished between *multiradial apocentricities* (many of which were plastic effects and afforded no guide to affinity) and *uniradial apocentricities* (which had arisen by a limitation and definition of variability in a particular branch of the family tree).

New Expedition to the Malay Peninsula.—We are informed in 'Nature' (vol. lxiii. p. 447, 1901) that a small zoological expedition has just started for the Malay Peninsula. It consists of Mr. N. Annandale, who was a member of the "Skeat" expedition to the Siamese Malay States in 1899, and Mr. N. C. Robinson, recently assistant in the Zoological Department of University College, Liverpool. They intend to settle for a year in the native State of Jalor, near the east coast of Lower Siam, and to explore the neighbourhood of Patani and Biseret. Collections will be made in all branches of natural history.

The Ægithognathous Palate.—At the Linnean Society's meeting on May 2nd, Mr. W. P. Pycraft, M.A., A.L.S., read a paper "On the Palate of the Neognathæ," in which he traced the derivation of the Neognathine from the more primitive Struthious or Palæognathine palate. The Neognathine, he pointed out, differs from the Struthious palate in that the palatines have shifted inwards to meet one another in the middle line below the pterygoids, with the distal ends of which they ultimately fuse. Further specialization of this type results in the segmentation of the pterygoid, the fusion of the segmented portion with the underlying palatines, and the formation of a joint at the point of segmentation—an apparent palato-pterygoid articulation. The palates of the *Galli* and *Anseres* reach the high-water mark of specialization in this direction ; the hitherto more or less intimately related pterygoid and vomer being completely divorced, and the latter depending entirely upon the palatines for support.

Birds of the outlying Islands of New Zealand.—The specimens of birds collected by the Earl of Ranfurly, Governor of New Zealand, during several trips round the outlying islands under his jurisdiction (as alluded to in a former paragraph, above, p. 358), have now been received at the British Museum. They were preserved in formaline, but have been very successfully converted into skins. Besides two Southern Mergansers (*Mergus australis*) and the Flightless Duck (*Nesonetta aucklandica*), there are examples of a new Cormorant (*Phalacrocorax ranfurlyi*) and of other rare and little-known species.

Mr. Pease's Birds from Abyssinia.—During his recent journey in Somaliland and Southern Abyssinia Mr. Alfred Pease, M.P., was accompanied by the excellent collector Mr. Harwood, and brought back a series of 800 skins of birds, which are being examined and named at the British Museum. Although few of them are new to science, there are many representatives of typically Abyssinian species among them (such as *Iynx æquatorialis*), hardly known to us except by Rüppell's descriptions. Mr. Ogilvie Grant promises us a paper on the collection for the next number of this Journal.

News of Mr. A. B. Percival, M.B.O.U.—Mr. A. B. Percival, on returning from his last expedition into South Arabia [an account of which appeared in 'Novitates Zoologicæ,' vii. pp. 243–273 (1900)], obtained an appointment in the East African Protectorate, and went out last summer to Mombasa. As opportunity has offered, he has been continuing his Natural History collections, but for a considerable time he has been quartered at Takaungu, a station on the coast, where the country is very unsuitable for collecting. He has, however, already sent home to Mr. Ogilvie Grant a collection of small mammals and birds. A second collection of birds, shortly expected, is said to contain some interesting specimens, and among them an example of the very rare *Machærhamphus anderssoni*.

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XXXIX.—*On the Birds of the Southern Shan States, Burma.*

By Lieut.-Colonel G. Rippon, 7th Burma Battalion.

(Plate XI.)

The tract of the Southern Shan States in which I collected is bounded approximately to the east and west by the meridians of East longitude 97° 50′ and 96° 30′, and to the north and south by the parallels of North latitude 20° 45′ and 19° 30′. I have not, however, visited the south-west of this area and have not seen any birds thence.

The chief centres and lines from and along which I have worked are Kalaw, about 4400 feet above the level of the sea; Tounggyi, about 5000 feet; Fort Stedman, about 3300 feet, where there is a large lake, and the hills to the eastward run up to 6400 feet; Loi Mai and Loi Maw, both peaks of above 8000 feet; Bampon, over 4000 feet; Loikaw, about 2800 feet; and the various roads connecting these points.

Looking over my list, I feel that I have somewhat neglected the water-birds; but a large number of these are migratory and come to the Shan States in the cold season, simultaneously with the Snipe, to the shooting of which most of the few holidays obtainable at that time of the year are devoted. Fort Stedman, where the headquarters of my regiment were stationed for nearly three years, is an almost ideal place for the collection and study of water-birds, as it is only about three quarters of a mile from the banks of a lake which, during the rainy season, is upwards of fifteen miles long and four or five miles wide.

A large portion of the northern end and of the east and west shores of the lake is covered with long grass growing on the matted and decaying remains of generations of its own kind. Birds swarm in this high growth and many breed there. There is great difficulty in getting through it, except along the channels kept open by the villagers and by the current from the north. A boat can only pass in other places by cutting a way, and an attempt to walk over the decayed vegetation, with grass eight or ten feet high above and water some feet deep below it, is soon given up. In the cold season the Snipe-shooting on the rice-ground and other marshy land round the shores is too good to permit of much collecting; in the hot weather work at higher altitudes is preferable; in the rainy season the lake is not pleasant, and there is not then the same variety of birds as there is at the cold time of year. These are my excuses for the comparative paucity of water-birds recorded, though I confess that, on mature consideration, they do not appear very good.

The tract over which I collected consists chiefly of hill-ranges running north and south, the enclosed valleys being in elevation generally from 3000 to 4000 feet, and the hills themselves from 5000 to 6000 feet, with peaks going up to 8000 feet. Subsidiary valleys of 5000 feet and upwards are found in the ranges. Limestone formations are common, and the hills therefore take curious shapes, while the drainage-system is often complicated. The stream from Fort Stedman, up and down which boats carrying upwards of five tons travel, "charges" a range of hills and disappears under it. The hills are full of "pot-holes" (natural subsidences), without any surface-exit for drainage. In one place a small limestone hill is situated in the middle of a valley, the whole drainage of which passes under it.

Except in the rainy season and just before it, the greater part of the Southern Shan States has an excellent climate. At Fort Stedman, at about 3300 feet, I have seen hoar-frost tionally musical whistle, and is not so gregarious as others of its genus.

14. Dryonastes sannio (Swinh.). (67.)
Very common between 3000 and 4500 feet.

15. Garrulax belangeri Less. (70.)
Obtained up to 2800 feet. Not common.

16. Garrulax pectoralis (Gould). (72.)
Reaches up to 4500 feet.

17. Garrulax moniliger (Hodgs.). (73.)
One specimen obtained in the Nampandet valley at about 1000 feet.

18. Trochalopterum melanostigma (Blyth). (86.)
Fairly common above 3500 feet.

19. Trochalopterum ripponi. (Plate XI. fig. 1.)
Trochalopterum ripponi Oates, Bull. B. O. C. vol. xi. p. 10.

This is the commonest of all the Laughing Thrushes found in the Southern Shan States. At elevations of from 4000 to 6000 feet, in secondary jungle, it may be heard calling throughout the day.

Irides dark brown; bill black; legs dusky brown.

20. Argya longirostris (Hodgs.). (109.)
Capt. W. S. Prentis sent me one specimen from Bampon.

21. Pomatorhinus nuchalis Tweed. (117.)
Not common.

22 Pomatorhinus olivaceus Blyth. (118.)
Very common.

23. Pomatorhinus ochraceiceps Wald. (126.)

24. Pomatorhinus imberbis Salvad. (129*a*.)
Very common from 3000 feet upwards. I shot a full-grown example of this species on the 9th of April in the hills to the east of Fort Stedman and immediately behind it.

25. TIMELIA PILEATA Horsf. (134.)

The only specimen I obtained was shot on the Inlé lake, near Fort Stedman.

26. PYCTORHIS SINENSIS (Gmel.). (139.)

Very common at about 3000 feet where there is high grass. A point not noted in the 'Fauna of British India' is that there are four or five stiff black bristles springing from the upper eyelids of this bird.

27. PELLORNEUM MANDELLII Blanf. (142.)

Common.

28. PELLORNEUM MINUS Hume. (143)

29. DRYMOCATAPHUS CINNAMOMEUS Rippon, Bull. B. O. C. vol. xi. p. 12. (148*a*.)

Met with only at Loi Mai at 6000 feet.

30. CORYTHOCICHLA BREVICAUDATA (Blyth). (153.)

From 4000 feet upwards, not uncommon in suitable places, that is to say, where limestone crops out and there is a moderate amount of undergrowth. I have, however, met with it on the densely clothed banks of a rocky stream.

31. ALCIPPE FRATERCULA Rippon, Bull. B. O. C. vol. xi. p. 11. (163*a*.)

Points not noted in the original description are that the irides are crimson and the legs and bill horn-coloured.

Its habits are those of a Flycatcher, and it seldom descends to the undergrowth, but takes up a position and thence makes short sallies in order to catch flies, precisely in the same manner as the small Flycatchers do. It is common to find pairs a little distance apart, frequently uttering their call, which consists of five notes, and is loud for the size of the bird.

32. ALCIPPE PHAYRII Blyth. (165.)

Capt. W. S. Prentis sent me one specimen from Bampon.

33. STACHYRHIS NIGRICEPS Hodgs. (169.)

34. STACHYRHIS ASSIMILIS Wald. (171.)

35. **Stachyrhidopsis sulphurea** Rippon, Bull. B. O. C. vol. xi. p. 11. (172*a*.)

At the time of obtaining this bird I did not discriminate between it and *S. ruficeps*. I found it at about 4800 feet.

36. **Stachyrhidopsis rufifrons** (Blyth). (173.)

Not common, but widely distributed. I got two specimens in low bamboo-jungle at an elevation of about 3500 feet.

37. **Schœniparus intermedius** Rippon, Bull. B. O. C. vol. xi. p. 11. (179*a*.)

The habits of this bird are similar to those of *S. mandellii*, and it is extremely common in the brushwood between 4500 and 7000 feet.

38. **Pseudominla castaneiceps** Hodgs. (182.)

Very common from 4500 feet upwards.

39. **Turdinulus exsul** Sharpe. (186.)

On Loi Mai at 5500 feet.

40. **Myiophoneus temmincki** Vigors. (187.)

I have shot this and the next species within a hundred yards of one another.

41. **Myiophoneus eugenii** Hume. (188.)

42. **Larvivora cyanea** (Pall.). (190.)

Only one specimen seen and obtained.

43. **Drymochares cruralis** (Blyth). (197.)

Obtained at 6000 feet. The movements of this species on the ground resemble those of a rat rather than of a bird. The only opportunities I have had of watching it have been in the openings in dense undergrowth beneath high trees at 5500 feet and upwards. I believe it to be fairly plentiful, but I have not been able to determine its likes and dislikes with regard to the nature of the ground chosen, as can be done so quickly with many birds. It makes its way very rapidly through thick brushwood, and, having arrived at the edge of an opening, squats behind a small rock or stone, or even a heap of leaves, and makes short runs from its shelter into the open, picking up something and returning. It is not timid, but is careful to keep on the side of its cover furthest from an observer.

44. Hodgsonius phœnicuroides (Hodgs.). (199.)

Only two specimens obtained.

45. Tesia cyaniventris Hodgs. (201.)

Very common at 5000 and up to 7000 feet, coming down to 4500 feet when the vegetation suits it. Its favourite places are the peculiar hollows which are so numerous in the hills of the Shan States. These vary from cone-shaped holes 30 yards across to valleys half a mile or more long, without any above-ground exit for their drainage. Where such localities are covered with dense undergrowth, consisting largely of nettles from seven to ten feet high and are shaded by big trees, a pair or more of *T. cyaniventris*, according to the size of the hollow, are certain to be found.

I have not been able to detect any difference in the plumage of the male and female. I determined the sex of several individuals; some were more brightly coloured than others, but this difference did not appear to be connected with the sex. I did not at any time obtain a bird in the young plumage, and in April, when I got most of my specimens, they were breeding. They have an alarm-note, by which their presence is immediately brought to notice, even when the watcher is moving over the driest of dead leaves. I have sometimes heard one of them utter a short but very sweet song. I think that the words "golden brown" in the description of this bird on p. 192 of the 'Fauna of British India: Birds,' must be a misprint and intended for "golden green."

The irides of all my specimens were dark brown.

46. Oligura castaneicoronata (Burton). (202.)

Not common, and, so far as my experience goes, only found at and over 5000 feet, and always near a running stream in thick undergrowth. I have never heard it utter a sound. In collecting this and similar forms which haunt the brushwood, it is necessary, after catching a glimpse of them, to sit down and watch. If the species is at all noisy, its note is sure to be heard.

The following are the dimensions of one of my specimens measured in the flesh :—Length 4″, tail 1″·1, wing 2″·2, tarsus 0″·85, bill from gape 0″·5. These are omitted from the details in the 'Fauna of British India.'

47. Sibia picoides Hodgs. (203.)

Fairly common. I have not seen it below about 4500 feet.

48. Lioptila melanoleuca (Blyth). (206.)

I obtained a specimen of this species in 1895 at Kalaw, but have never seen it west of the Fort Stedman valley since. It has a white patch on the wing, which is very conspicuous in flight.

49. Lioptila castanoptera (Salvad.). (207.)

Very common in the hills about Kalaw, but I do not think it extends far to the east.

It has a white patch on the wing, as the last species has.

50. Lioptila saturata Wald. (208*a*.)

In the 'Fauna of British India' this name is entered as a synonym of *L. annectens*, but the specimens in the Natural History Museum, South Kensington, labelled "*L. annectens*," do not at all correspond in colouring with those I obtained. The *extent* of the chestnut on the back of my examples is similar to that in *L. annectens*, but the colour is very much darker. I should describe the middle of the back of *L. annectens*, as represented in the Natural History Museum, as being of a fulvous chestnut, while the colour of that part in the specimens that I obtained is *very* deep chestnut, recalling the colour in *L. davisoni*.

51. Actinodura ramsayi (Wald.). (212.)

Very common in the hill-range east of Fort Stedman at 5000 feet, and found in the cold weather down to 3500 feet. Breeds in April.

52. Staphidia rufigenis (Hume). (217.)

Only once obtained, at about 5000 feet, in March, out of some low bamboo-jungle.

53. Siva castaneicauda Hume. (220.)

I have not seen this species below about 6000 feet; it was found quite at the top of the highest peaks on which I collected, where these were well wooded.

54. Siva sordida Hume. (222.)

The specimens I obtained are nearer to this form than to *S. cyanuroptera*, but the winglet is in several cases tipped with white.

55. Zosterops aureiventris Hume. (227.)

Very common, and appears to me to grade into the next species.

56. Zosterops simplex Swinh. (228.)

57. Herpornis xantholeuca Hodgs. (234.)

Found from 3000 to 5400 feet.

58. Cutia nepalensis (Hodgs.). (236.)

Not common.

59. Pteruthius æralatus Tick. (238.)

Not common, but widely distributed.

60. Pteruthius melanotis Hodgs. (239.)

61. Pteruthius intermedius (Hume). (240.)

Rare.

62. Ægithina tiphia (Linn.). (243.)

Very common in the valleys up to 3500 feet.

63. Chloropsis aurifrons (Temm.). (247.)

Very common from 3000 to 5000 feet.

64. Chloropsis hardwickii Jard. & Selby. (249.)

65. Chloropsis chlorocephala (Wald.). (250.)

I have only met with this bird at 2800 feet.

66. Irena puella (Lath.). (254.)

Not common: does not appear to ascend higher than about 3000 feet in the Southern Shan States.

67. Melanochlora sultanea (Hodgs.). (255.)

Only once obtained, at about 3000 feet, in low evergreen jungle.

68. **Psaroglossa spiloptera** (Vig.). (261.)
Rare.

69. **Criniger flaveolus** (Gould). (263.)

70. **Hypsipetes concolor** Blyth. (270.)
Very common.

71. **Cerasophila thompsoni** Bingham, Ann. & Mag Nat. Hist. ser. 7, vol. v. p. 358. (270 *a.*)
I obtained this bird for the first time in April 1899, at an elevation of about 5300 feet. It is a species fond of that kind of secondary jungle which springs up round cultivated clearings.

72. **Hemixus tickelli** (Blyth). (276.)
This bird seems to vary very much in colour. When in the Shan States, I was under the impression that I had obtained both it and *H. macclellandi* (Horsf.), but found on comparison with other specimens that all my skins were nearest to those of this species.

73. **Alcurus striatus** (Blyth). (277.)
Very common above 6000 feet, on Loi Mai and Loi Maw, and quite up to the tops of the highest peaks at about 8000 feet. It prefers tree-jungle, but the trees must not be too high or very dense.

74. **Molpastes atricapillus** (Vieill.). (281.)

75. **Xanthixus flavescens** (Blyth). (287.)
Very common.

76. **Otocompsa emeria** (Linn.). (288.)
Very common; this and one or two other kinds of Bulbul have discovered that strawberries are good to eat, and they are now a great nuisance in the gardens.

77. **Otocompsa flaviventris** (Tick.). (290.)

78. **Spizixus canifrons** Blyth. (292.)
Very common at 5000 feet and upwards.

79. **Iole virescens** Blyth. (296.)
Fairly common, but I did not meet with it above about 3500 feet.

80. Pycnonotus xanthorrhous Anders. (298 *a*.)

Common in secondary jungle above 4000 feet.

81. Sitta neglecta Wald. (317.)

82. Sitta nagaensis Godw.-Aust. (318.)

Common from 4000 feet upwards. It is by no means exclusively a tree bird; it hunts over rocks and the sides of old cuttings as well as on trees.

83. Sitta magna Wardlaw-Ramsay. (319.)

I have shot this bird at Kalaw and at Loi Maw, and have one specimen from Tounggyi. I have never met with it far from pine-forest.

84. Sitta frontalis Horsf. (325.)

Common from 3000 to 6000 feet.

85. Dicrurus annectens (Hodgs.). (326.)

I have not met with this or the next species in the numbers which are sometimes seen in the plains. The next is that ordinarily seen.

86. Dicrurus ater (Herm.). (327.)

87. Dicrurus cineraceus (Horsf.). (333.)

The common form of Drongo from 4000 feet upwards. Breeds from the beginning of April. Young birds just able to fly from tree to tree (about 6 or 7 yards) were very dark ashy grey.

88. Chaptia aënea (Vieill.). (334.)

Fairly common.

89. Bhringa remifer (Temm.). (339.)

One of those birds more commonly seen than obtained.

90. Certhia discolor Blyth. (345.)

Very common above 5000 feet, upon some half-cleared slopes on Loi Mai. I had to give orders that this bird was not to be shot within a very few days of my first meeting with it.

91. Pnoepyga pusilla Hodgs. (357.)

Only met with twice, each time at about 5300 feet.

92. **LOCUSTELLA CERTHIOLA** (Pall.). (360.)
Common in rice-fields.

93. **LOCUSTELLA LANCEOLATA** (Temm.). (361.)
This is the common *Locustella* of the Shan States. I have killed a specimen as late as the end of May, but the bulk of the large number which visit the Shan States leave in the latter part of April.

94. **ACROCEPHALUS STENTOREUS** (Hempr. & Ehr.). (363.)
I have heard this bird on the Fort Stedman lake in July, so probably a few stay to breed there.

95. **ORTHOTOMUS SUTORIUS** (Forst.). (374.)
Very common.

96. **CISTICOLA CURSITANS** (Frankl.). (381.)

97. **FRANKLINIA GRACILIS** (Frankl.). (382.)
Very common.

98. **FRANKLINIA RUFESCENS** (Blyth). (383.)

99. **MEGALURUS PALUSTRIS** (Horsf.). (389.)
Very common.

100. **ARUNDINAX AËDON** (Pall.). (393.)
Obtained at 3600 feet in April.

101. **HERBIVOCULA SCHWARZI** (Radde). (404.)

102. **PHYLLOSCOPUS AFFINIS** (Tick.). (405.)

103. **PHYLLOSCOPUS FUSCATUS** (Blyth). (410.)
Not obtained above 4000 feet.

104. **PHYLLOSCOPUS PULCHER** (Pall.). (414.)
Obtained at 7000 feet and upwards.

105. **PHYLLOSCOPUS PROREGULUS** (Pall.). (415.)
Fairly common at 5300 feet and upwards.

106. **PHYLLOSCOPUS SUPERCILIOSUS** (Gmel.). (417.)
Very common.

107. **ACANTHOPNEUSTE BOREALIS** (Blas.). (420.)

108. Acanthopneuste plumbeitarsus (Swinh.). (423.)
A bird of low elevations.

109. Acanthopneuste lugubris (Blyth). (426.)
Common.

110. Acanthopneuste occipitalis (Jerd.). (428.)

111. Acanthopneuste trochiloides (Sundev.). (429.)
I did not obtain this species below 5000 feet.

112. Acanthopneuste davisoni Oates. (430.)
The commonest of all this group of Warblers at elevations of from 5000 feet upwards. It may be obtained at 4000 feet, but from 5000 to 8000 feet a fair number will necessarily be shot by mistake while collecting. A permanent resident.

113. Cryptolopha tephrocephala (Anders.). (432.)
Not common, but widely distributed.

114. Cryptolopha castaneiceps (Hodgs.). (437.)
Obtained from about 5000 feet upwards. Both this and the last species appear to be permanent residents.

115. Horornis brunnescens (Hume). (447.)

116. Phylleroates coronatus (Jerd. & Blyth). (454.)

117. Urosphena squamiceps (Swinh.). (457.)
I obtained two specimens of this bird, both shot in the same kind of place in the months of March and April at an elevation of a little over 5000 feet. They were in the brushwood by the side of a small stream flowing out of a narrow valley into the open, while the ground around was marshy.

118. Suya criniger (Hodgs.). (458.)

119. Suya atrigularis Moore. (459.)

120. Suya superciliaris Anders. (461.)
Very common.

121. Prinia flaviventris (Deless.). (463.)
Fairly common in the flat grassy valleys at about 3000 feet.

122. **Prinia inornata** Sykes. (468.)
The only two skins of this type of *Prinia* which I took home appeared to belong to this species. In my original notes I had included *P. blanfordi* (Wald.) as obtained.

123. **Lanius colluriioides** Less. (474.)
Very common in the rainy season, at which time it breeds in the Shan States. A good number remain throughout the year.

124. **Lanius nigriceps** (Frankl.). (475.)

125. **Lanius tephronotus** (Vig.). (477.)

126. **Lanius cristatus** Linn. (481.)
I got my specimens at about 2800 feet; the species does not appear to ascend to any great elevation.

127. **Hemipus picatus** (Sykes). (484.)
Common.

128. **Tephrodornis pelvicus** (Hodgs.). (486.)
Very common.

129. **Tephrodornis pondicerianus** (Gmel.). (488.)

130. **Pericrocotus speciosus** (Lath.). (490.)
The commonest Minivet in this tract of country.

131. **Pericrocotus fraterculus** Swinh. (491.)

132. **Pericrocotus brevirostris** (Vig.). (495.)

133. **Pericrocotus solaris** Blyth. (498.)

134. **Pericrocotus roseus** (Vieill.). (499.)
On one occasion I obtained two examples of this species at 4500 feet.

135. **Pericrocotus peregrinus** (Linn.). (500.)

136. **Campophaga melanoptera** (Rüpp.). (506.)
Fairly common.

137. **Graucalus macii** Less. (510.)

138. **Artamus fuscus** Vieill. (512.)

139. Oriolus indicus Jerd. (514.)
Observed by Mr. E. W. Oates at Kalaw.

140. Oriolus tenuirostris Blyth. (515.)
Very common.

141. Oriolus melanocephalus (Linn.). (521.)
Generally distributed, but nowhere very common.

142. Oriolus traillii (Vig.). (522.)
Very common at Kalaw, where it breeds in March. Not uncommon elsewhere, but very local.

143. Eulabes intermedia (A. Hay). (524.)

144. Sturnia malabarica (Gmel.). (538.)

145. Sturnia nemoricola Jerd. (539.)

146. Graculipica nigricollis (Payk.). (546.)
Judging by the number and variety of Mainas found in the Southern Shan States, the climate seems to suit them precisely. The present species is the giant among them, and is very conspicuous both when flying and when on the ground. The white patch formed by the feathers on the rump and by the shorter tail-coverts is very noticeable when the bird is on the wing.

The colour of some of the soft parts is not entered in the 'Fauna of British India.' Iris very pale yellow; bill black, lighter at culmen; legs and feet very pale horn-coloured.

147. Graculipica burmanica (Jerd.). (547.)
Common.

148. Acridotheres tristis (Linn.). (549.)

149. Æthiopsar fuscus (Wagl.). (552.)

150. Æthiopsar grandis (Moore). (553.)

151. Æthiopsar albicinctus (Godw.-Aust.). (554.)
Very common.

152. Sturnopastor superciliaris Blyth. (550.)

153. Hemichelidon sibirica (Gmel.). (558.)
Only one specimen obtained. It was got at 5500 feet in the range of hills immediately to the east of Fort Stedman.

154. Hemichelidon ferruginea Hodgs. (559.)
On Loi Maw at 6000 feet.

155. Siphia strophiata Hodgs. (560.)
One male obtained in March at about 5500 feet.

156. Siphia albicilla (Pall.). (562.)
Very common.

157. Cyornis hodgsoni (Verr.). (565.)
Common.

158. Cyornis hyperythrus (Blyth). (566.)
One of the specimens that I took home turned out to belong to this species. I had not previously identified it.

159. Cyornis melanoleucus (Hodgs.). (569.)
Very common.

160. Cyornis astigma (Hodgs.). (570.)

161. Cyornis oatesi Salvad. (572.)

162. Cyornis unicolor Blyth. (574.)
Not uncommon at Kalaw.

163. Cyornis rubeculoides (Vig.). (575.)
Common.

164. Cyornis tickelli Blyth. (576.)

165. Nitidula hodgsoni (Moore). (578.)
Found at the higher elevations, but not common.

166. Stoparola melanops (Vig.). (579.)
Obtained at Bampon and on the slopes of Loi Mai.

167. Anthipes leucops (Hodgs.). (584.)
Only two specimens obtained.

168. Alseonax muttui (Layard). (590.)
Common above 5000 feet.

169. Culicicapa ceylonensis (Swains.). (592.)
Very common at 4000 feet and upwards, especially where there is running water.

170. Niltava grandis (Blyth). (593.)
Common in the shady jungles, at an elevation of above 4500 feet.

171. Niltava sundara Hodgs. (594.)
As the last species. I have shot the two within 50 yards of one another.

172. Niltava macgregoriæ (Burton). (595.)
Met with on Loi Mai only.

173. Terpsiphone affinis (Hay). (599.)

174. Hypothymis azurea (Bodd.). (601.)
Common at Fort Stedman.

175. Chelidorhynx hypoxanthus (Blyth). (603.)
I have not met with this charming bird below about 5000 feet. In the 'Fauna of British India,' it is mentioned, on Blanford's authority, that "this Flycatcher is usually seen in small flocks hunting about trees." Nothing could be more misleading so far as my experience goes. It is essentially a Flycatcher of the air, and is as delightfully quarrelsome a bird as can be met with.

It is not uncommon where the nature of the jungle and the ground suits it. In one place where I camped for some time at above 5000 feet, I knew of many spots where I could always find a pair to watch. Their favourite places are where there is a sharp dip in a ridge, both sides of the dip being covered with high evergreen trees, juicy balsams, and other undergrowth. Here they choose a perch, frequently the dead branch of a fallen tree, and if there is only another pair within fifty yards or so there will be many fights and chasing of trespassers.

This bird's method of capturing its food (small flies) differs from that of most Flycatchers; it almost invariably rises from its perch nearly perpendicularly, and the effect of this is very striking when the breast is towards the observer, the bright yellow of the lower plumage catching any rays of sunlight which may be falling through the leaves overhead and shining out like a flash of gold. The return flight, almost equally perpendicular, gives a somewhat similar effect in green, although there is little bright green in the colour of the back when the bird is in one's hand.

A glance at the feet of this species will shew how ill-adapted it is to "hunt about trees." No doubt its very stiff tail-feathers assist greatly in its perpendicular flights.

176. Rhipidura albicollis (Vieill.). (605.)
Common everywhere.

177. Pratincola caprata (Linn.). (608.)
Common up to 4500 feet wherever the country is fairly open.

178. Pratincola maura (Pall.). (610.)
Both this and the next species are to be found on the lake at Fort Stedman. It also frequents the drier hill-sides.

179. Pratincola leucura Blyth. (611.)

180. Oreicola ferrea (Hodgs.). (615.)
Common wherever there are open spaces. It remains the whole year round.

181. Henicurus schistaceus Hodgs. (632.)
I have met with this species only in the rapid stream to the west of the Loi Mai range, which is from 15 to 25 feet broad, and runs north at an elevation of about 5300 feet; no doubt wherever there are other streams as large and at as high an elevation it may be found. I saw a fair number of this bird and of *H. leschenaulti* at the place mentioned above.

182. Henicurus immaculatus Hodgs. (633.)
Not uncommon between 2000 and 4500 feet.

183. Henicurus leschenaulti (Vieill.). (634.)
See *H. schistaceus.*

184. **Chimarrhornis leucocephalus** (Vig.). (638.)
Not uncommon.

185. **Ruticilla aurorea** (Pall.). (641.)

186. **Rhyacornis fuliginosus** (Vig.). (646.)
The only place where I found this bird was at the stream on which I obtained *Henicurus schistaceus*.

187. **Cyanecula suecica** (Linn.). (647.)
Not uncommon on the floating grass in the Fort Stedman lake in the cold season.

188. **Calliope camtschatkensis** (Gmel.). (650.)
Two specimens obtained in the hills east of Fort Stedman.

189. **Tarsiger chrysæus** Hodgs. (653.)
Obtained once at Tounggyi, at about 5000 feet.

190. **Ianthia rufilata** (Hodgs.). (654.)
I have not seen this bird later in the year than April. It is fairly common in the cold season.

191. **Notodela leucura** (Hodgs.). (659.)
Only once obtained, on Loi Maw at 6000 feet in April.

192. **Copsychus saularis** (Linn.). (663.)
Very common.

193. **Cittocincla macrura** (Gmel.). (664.)
I have not seen this bird above about 3000 feet.

194. **Merula protomelæna** (Cab.). (679.)
Fairly common between 4000 and 6000 feet. I got a three-quarter grown young bird at the end of April.

195. **Merula obscura** (Gmel.). (680.)
On Loi Maw at 7800 feet in April. This species and the next were obtained on the same day and in the same locality.

196. **Merula feæ** Salvad. (682.)

197. **Petrophila erythrogastra** (Vig.). (690.)
Fairly common.

198. **Petrophila solitaria** (Müll.). (692.)

199. **Petrophila cyanus** (Linn.). (693.)

200. Oreocincla dauma (Lath.). (698.)

I have not met with this bird below about 5000 feet. It appears to have the same habits as *O. dixoni*; they frequent the hill-sides up to 8000 feet where these are bare except for high trees and dead leaves.

201. Oreocincla varia (Pall.). (698 *a*.)

Obtained once only, in the hills immediately to the east of Fort Stedman at about 5000 feet.

202. Oreocincla dixoni (Swinh.). (702.)

203. Zoothera marginata Blyth. (705.)

Met with on the same kind of ground as *O. dauma* and *O. dixoni*, but down to 3000 feet.

204. Cinclus pallasi Temm. (710.)

I have never seen this bird alive. Mr. H. N. Thompson, of the Forest Department, was good enough to send me a skin which he had obtained at the Mese-gun stream in the Mawkmai State, trans-Salween.

205. Ploceus megarhynchus Hume. (721.)

Fairly common on and about the Fort Stedman lake.

206. Ploceus manyar (Horsf.). (723.)

This species simply swarms on the Fort Stedman lake; enormous flocks may be seen at any time of year.

207. Munia atricapilla (Vieill.). (726.)

Very common from 3000 to 4000 feet.

208. Uroloncha acuticauda (Hodgs.). (727.)

Common.

209. Uroloncha topela (Swinh.). (735 *a*.)

I had identified the specimens I obtained as *U. punctulata* (Linn.), but I subsequently found on comparison with others in the Nat. Hist. Museum that they were all of this species, which has not, I believe, been recorded within Indian limits before.

210. Sporæginthus flavidiventris (Wallace). (739.)

Fairly common up to 4000 feet.

211. Mycerobas melanoxanthus (Hodgs.). (744.)
One specimen obtained in the middle of April in the hills behind Fort Stedman at about 5000 feet.

212. Carpodacus erythrinus (Pall.). (761.)
Fairly common.

213. Passer domesticus (Linn.). (776.)
Very common.

214. Passer montanus (Linn.). (779.)

215. Passer cinnamomeus (Gould). (780.)
Obtained once at Kalaw.

216. Passer flaveolus Blyth. (781.)
Very common.

217. Emberiza fucata Pall. (790.)

218. Emberiza pusilla Pall. (791.)
Common.

219. Emberiza aureola Pall. (797.)
A fair number may be met with.

220. Emberiza rutila Pall. (802.)
Fairly common.

221. Melophus melanicterus (Gmel.). (803.)
Common on all open uplands above 4000 feet.

222. Cotile riparia (Linn.). (808.)
Very common on the Fort Stedman lake in the cold season. I intended to have collected a good series of these and of other Swallows in the cold season of 1899-1900, but they came rather later than usual, and I left the Shan States on the 1st of December, 1899, before they had arrived in any great numbers.

223. Hirundo rustica Linn. (813.)
Fort Stedman lake seems to be a general meeting-place of this group of Swallows.

224. Hirundo gutturalis Scop. (814.)

225. Hirundo tytleri Jerd. (815.)

226. Hirundo erythrogastra Bodd. (816.)

227. Hirundo smithi Leach. (818.)
Very common everywhere up to about 5000 feet.

228. Hirundo striolata Temm. (820.)
This bird and the next, so far as my experience goes, frequent valleys at an elevation of not less than 4000 feet. They remain the whole year round.

229. Hirundo nepalensis Hodgs. (822.)
This species is found in company with the last.

230. Motacilla alba Linn. (826.)
Wagtails of many kinds are plentiful on the Fort Stedman lake. With the exception of *M. leucopsis* Gould, I took home with me skins of all the forms recorded here.

231. Motacilla leucopsis Gould. (827.)

232. Motacilla ocularis Swinh. (828.)

233. Motacilla melanope Pall. (832.)
I have seen this Wagtail in the Southern Shan States in July.

234. Motacilla borealis Sundev. (833.)

235. Motacilla citreola Pall. (837.)

236. Limonidromus indicus (Gmel.). (839.)
Rare. I obtained one specimen only, at about 3400 feet near Fort Stedman.

237. Anthus maculatus Hodgs. (841.)
One of the commonest birds in the Shan States in the cold season.

238. Anthus richardi Vieill. (845.)

239. Anthus striolatus Blyth. (846.)
Not common.

240. Anthus rufulus Vieill. (847.)

241. Anthus cervinus (Pall.). (849.)

242. Alauda gulgula Frankl. (861.)
Very common above 4000 feet.

243. **Æthopyga seheriæ** (Tick.). (882.)

The common Sun-bird of the Southern Shan States up to about 4000 feet.

244. **Æthopyga dabryi** (Verr.). (889.)

This species and the next are the common Sun-birds from 4000 to 6000 feet.

245. **Æthopyga sanguinipectus** Wald. (891.)

246. **Æthopyga nepalensis** (Hodgs.). (892.)

I have not met with this bird below about 7000 feet, and I have never found it very plentiful.

247. **Arachnechthra asiatica** (Lath.). (895.)

Very common up to about 4500 feet.

248. **Arachnothera magna** (Hodgs.). (906.)

Common.

249. **Dicæum cruentatum** (Linn.). (912.)

The common Flower-pecker of the lower elevations; in some places it is very plentiful.

250. **Dicæum ignipectus** (Hodgs.). (915.)

I have always had an impression that this was a bird of comparatively high elevations, but I find that I have one entry of having obtained it at about 2800 feet.

251. **Dicæum erythrorhynchum** (Lath.). (919.)

Only one specimen obtained; it was sent to me by Capt. W. S. Prentis from Bampon.

252. **Pipriscoma modestum** (Hume). (922.)

253. **Pachyglossa melanoxantha** Hodgs. (925.)

I first procured this bird in the Na-Noi valley at about 5300 feet. I noted that the two specimens obtained there were very quiet and solitary. Both were perched on dead branches of trees, from which they made short flights after insects in the manner of Flycatchers.

The next time I met with this species was at the top of Loi Mai, at over 8000 feet, where there were a good number of individuals, which were very lively, chasing one another about. They were breeding in April.

254. **Anthocincla phayrii** Blyth. (926.)

255. **Pitta oatesi** (Hume). (928.)
Obtained in April at 5300 feet.

256. **Psarisomus dalhousiæ** (Jameson). (944.)
This handsome bird is very common in the parts of the country suited to it. It especially affects the "tounggya" (hill cultivation) in well-wooded districts. I have not obtained it below about 4000 feet, and it was very plentiful near one of my camps at about 5300 feet. This was during the breeding-season in April, when its shrill screams could be heard all day.

257. **Gecinus occipitalis** (Vigors). (950.)
All the Woodpeckers mentioned below, except *D. cabanisi*, seem to be fairly common.

258. **Gecinus chlorolophus** (Vieill.). (951.)

259. **Chrysophlegma flavinucha** (Gould). (955.)

260. **Hypopicus hyperythrus** (Vig.). (960.)

261. **Dendrocopus cabanisi** (Malh.). (962.)
At Kalaw and in the hills to the east of Fort Stedman.

262. **Dendrocopus pyrrhothorax** (Hume). (966.)

263. **Dendrocopus atratus** (Blyth). (968.)
Very common from 4000 feet upwards.

264. **Iyngipicus canicapillus** (Blyth). (975.)

265. **Pyrrhopicus pyrrhotis** (Hodgs.). (978.)

266. **Micropternus phæoceps** Blyth. (983.)

267. **Tiga javanensis** (Ljung). (988.)

268. **Chrysocolaptes gutticristatus** (Tick.). (992.)

269. **Hemicercus canente** (Less.). (995.)

270. **Picumnus innominatus** Burton. (1001.)
I have only once met with this bird. It was at an elevation of 5500 feet.

271. Iynx torquilla (Linn.). (1003.)

Fairly common at Loikaw (about 2800 feet) in the cold weather.

272. Megalæma virens (Bodd.). (1007.)

May be heard calling all day in the hot season.

273. Thereiceryx lineatus (Vieill.). (1009.)

Found up to 4300 feet at Bampon.

274. Cyanops asiatica (Lath.). (1012.)

275. Cyanops davisoni (Hume). (1013.)

276. Cyanops ramsayi (Wald.). (1018.)

This species and the two preceding appear to have the same call and habits.

277. Xantholæma hæmatocephala (P. L. S. Müll.). (1019.)

I have never seen this bird so abundant anywhere as it is in the cold season in the Loikaw valley at about 2800 feet. It is not uncommon to see as many as ten on neighbouring branches. Near the small fort at Loikaw there are some peepul-trees which are without leaves in the cold season; these are favourite places for this Barbet.

278. Coracias affinis (M'Clell.). (1023.)

I have not seen this species above about 5000 feet.

279. Merops viridis Linn. (1026.)

Very common.

280. Merops philippinus Linn. (1027.)

I shot this bird once at Fort Stedman, but on no other occasion have I ever even heard its familiar note in the Shan States.

281. Melittophagus swinhoii (Hume). (1030.)

I have seen this bird, but have never shot it, in the Shan States. Mr. H. N. Thompson was good enough to send me three specimens which he collected in the Mawkmai State, while Capt. W. S. Prentis procured one near Bampon.

282. Nyctiornis athertoni (Jard. & Selby). (1031.)

283. Ceryle varia Strickl. (1033.)
Very common.

284. Alcedo ispida Linn. (1035.)
Very common.

285. Pelargopsis gurial (Pearson). (1043.)
Obtained only on the Fort Stedman lake.

286. Halcyon smyrnensis (Linn.). (1044.)
Very common.

287. Callialcyon lilacina (Swains.). (1046.)
I obtained one specimen of this species in a valley to the west of Kalaw at about 3500 feet.

288. Dichoceros bicornis (Linn.). (1051.)
Common.

289. Anthracoceros albirostris (Shaw & Nodd.). (1053.)
Very common.

290. Aceros nepalensis (Hodgs.). (1057.)
Obtained on one occasion only, at over 5000 feet. The bare skin of the chin and throat in my specimen was orange-scarlet edged with blue.

291. Upupa indica Reich. (1067.)
Common at 3000 feet and ascends up to 5000 feet.

292. Cypselus pacificus (Lath.). (1071.)
Not uncommon, but I only got a specimen just before leaving the district. I have seen another species of Swift in the Shan States without any white on the rump, but I did not obtain an example of it.

293. Tachornis infumatus (Sclater). (1076.)
Two pairs built their nests in the grass-thatched roof of the house in which I lived when I first arrived at Fort Stedman.

294. Micropteryx coronata (Tick.). (1086.)
I have not seen this bird above about 4500 feet.

295. **Caprimulgus macrurus** Horsf. (1093.)
Very common all over the Shan States.

296. **Batrachostomus hodgsoni** (G. R. Gray). (1097.)
I got two specimens of this species on Loi Maw at about 5000 feet.

297. **Harpactes erythrocephalus** (Gould). (1101.)
I obtained several specimens at 5300 feet.

298. **Cuculus canorus** Linn. (1104.)
This bird is heard calling everywhere above about 3000 feet in the Shan States during the hot weather—*i. e.*, from the middle of March to the end of May. I had one example brought to me in September.

299. **Cuculus micropterus** Gould. (1107.)
This species is not heard so much as the last, but it is not uncommon.

300. **Hierococcyx sparverioides** (Vig.). (1108.)
Found up to 4500 feet.

301. **Cacomantis merulinus** (Scop.). (1113.)
Common.

302. **Penthoceryx sonnerati** (Lath.). (1114.)
Quite common, especially in open country where there are a few scattered bushes and trees. Very noisy about April and May, when it breeds.

303. **Surniculus lugubris** (Horsf.). (1117.)
Only one specimen obtained.

304. **Eudynamis honorata** (Linn.). (1120.)
Extends up to 5000 feet.

305. **Rhopodytes tristis** (Less.). (1123.)
Common.

306. **Centropus sinensis** (Steph.). (1130.)
Common.

307. **Centropus bengalensis** (Gmel.). (1133.)

308. **Palæornis torquatus** (Bodd.). (1138.)

309. **Palæornis rosa** (Bodd.). (1140.)

310. **Palæornis finschi** Hume. (1142.)
This is the common Paroquet of the Southern Shan States.

311. **Strix flammea** Linn. (1152.)
Not uncommon, I believe, but I have never collected Owls very energetically.

312. **Asio accipitrinus** (Pall.). (1157.)
Among the skins sent to me by Mr. H. N. Thompson there was one labelled "Grass-Owl." On comparing it with skins in the Nat. Hist. Museum, I found it to be of this species.

313. **Ketupa zeylonensis** (Gmel.). (1166.)
Obtained at 5300 feet.

314. **Scops giu** (Scop.), var. **sunia** Hodgs. (1173.)
Common.

315. **Scops bakkamœna** (Penn.), var. **lettia** Hodgs. (1178.)

316. **Athene brama** (Temm.). (1180.)

317. **Pandion haliaëtus** (Linn.). (1189.)
Not uncommon on the Fort Stedman lake.

I took very few specimens of Accipitres or of any other large birds to England. When travelling in the Shan States the only transport generally obtainable is that by mules and bullocks; hence if skins of large birds are not sent to a station immediately they are procured, they are apt to be damaged. With the exception of the two Vultures, I have included in this list only those birds of which I have actually handled specimens.

318. **Gyps tenuirostris** Hodgs. (1195.)

319. **Pseudogyps bengalensis** (Gmel.). (1196.)
The common Vulture of the Shan States. All the Vultures seem to leave the district in the rainy season.

320. **Aquila bifasciata** Gray. (1202.)
Common at about 4000 feet and upwards.

321. **Spizaëtus limnaëtus** (Horsf.). (1212.)
Sent to me from Bampon by Capt. W. S. Prentis.

322. **Spilornis cheela** (Lath.). (1217.)
At the low elevations only.

323. **Butaster liventer** (Temm.). (1221.)
Common.

324. **Polioaëtus ichthyaëtus** (Horsf.). (1226.)
Not uncommon on the lake at Fort Stedman.

325. **Haliastur indus** (Bodd.). (1228.)

326. **Milvus govinda** Sykes. (1229.)
Very common; like the Vultures, it leaves the Shan States in the rainy season.

327. **Milvus melanotis** Temm. & Schleg. (1230.)

328. **Circus macrurus** (S. G. Gmel.). (1233.)

329. **Circus melanoleucus** (Forst.). (1236.)
Common.

330. **Astur badius** (Gmel.), var. **poliopsis** Sharpe. (1244.)

331. **Lophospizias trivirgatus** (Temm.). (1246.)
Sent to me from Tounggyi by Mr. H. N. Thompson.

332. **Accipiter nisus** (Linn.). (1247.)
Two specimens taken to England.

333. **Falco peregrinus** (Tunstall). (1254.)
Common.

334. **Falco subbuteo** Linn. (1260.)
One specimen sent to me by Mr. H. N. Thompson.

335. **Erythropus amurensis** Gurney. (1262.)
In April in two successive years these birds were recorded as passing Bampon on migration to the east. They appear to be rather dull and take things very easily, never seeming to be in a hurry.

336. **Microhierax eutolmus** Hodgs. (1267.)

337. **Crocopus phœnicopterus** (Lath.). (1271.)
The Common Green Pigeon of the Shan States, and the only one I have met with there in any large numbers.

338. **Treron nepalensis** (Hodgs.). (1281.)

339. **Sphenocercus sphenurus** (Vig.). (1283.)

340. **Carpophaga aënea** (Linn.). (1284.)
Sent to me from Bampon by Capt. W. S. Prentis.

341. **Ducula griseicapilla** Wald. (1287.)
Fairly common on the Loi Mai range at over 5000 feet in March and April. In the 'Fauna of British India' this bird is entered as of the same dimensions as *D. insignis*. The specimens that I collected were much smaller. The dimensions of one of them were: length 17 inches; tail 6 inches; wing 9 inches; tarsus 1·2 inch; bill from gape 1·3 inch.

342. **Chalcophaps indica** (Linn.). (1291.)

343. **Columba intermedia** Strickl. (1292.)

344. **Dendrotreron hodgsoni** (Vig.). (1297.)
Common on the west slopes of Loi Mai at above 5000 feet in the end of March and the beginning of April. I only took seven specimens with me to England, but that does not give any idea of the numbers to be found, as my skinners had more than they could do at the time, and big birds were generally handed over to my followers to be eaten. Irides light yellow.

345. **Alsocomus puniceus** Tick. (1302.)

346. **Turtur orientalis** (Lath.). (1304.)
Very common.

347. **Turtur tigrinus** (Temm.). (1308.)
Very common.

348. **Œnopopelia tranquebarica** (Herm.). (1311.)
Common.

349. **Macropygia tusalia** (Hodgs.). (1312.)

350. **Pavo muticus** Linn. (1325.)

This bird occurs in parties or colonies. Wherever such are found there seem to be a good number of individuals, but no more will be seen for some 20 or 30 miles, although the intervening ground may appear equally suitable.

351. **Gallus ferrugineus** (Gmel.). (1328.)

Common up to about 3500 feet.

352. **Phasianus burmanicus** Oates. (1331 *a*.)

I have not met with this species except in comparatively thin jungle on dry hill-sides. The following are the localities in which I have obtained it:—Kalaw; the hills immediately behind, *i. e.* to the east of, Fort Stedman; and the western slopes of Loi Maw.

353. **Gennæus lineatus** (Vig.). (1340.)

At low elevations only.

354. **Gennæus andersoni** (Elliot). (1341.)

I enter the specimens I obtained under this heading, but I am by no means completely satisfied that I am correct. Two of them are over 40 inches long.

In the 'Fauna of British India: Birds,' page 95, the length of the female of *G. nycthemerus* is given as 20 inches, probably by a misprint.

355. **Bambusicola fytchi** Anderson. (1352.)

Very local; where found it appears to be fairly plentiful.

356. **Excalfactoria sinensis** (Linn.). (1354.)

Twice killed in the course of a day's shooting at Loikaw in December, but not again met with.

357. **Coturnix coromandelica** (Gmel.). (1356.)

Fairly common; it breeds at 4000 feet in the rainy season.

358. **Coturnix japonica** Temm. & Schleg. (1356 *a*.)

One specimen which I took to England was identified as belonging to this species.

359. **Arboricola rufigularis** Blyth. (1363.)

Very common in places which it likes.

360. Francolinus chinensis (Osbeck). (1374.)
Common in places suited to it up to about 5000 feet.

361. Turnix pugnax (Temm.). (1382.)
Frequently met with, but never very plentiful in one place. Occurs up to about 6000 feet.

362. Turnix blanfordi Blyth. (1386.)

363. Rallus indicus Blyth. (1387.)
I have seen on the Fort Stedman lake at least two other kinds of Rails, which, however, I failed to obtain.

364. Porzana pusilla (Pall.). (1393.)

365. Amaurornis fuscus (Linn.). (1398.)
Fairly common on the lake at Fort Stedman.

366. Amaurornis phœnicuroides (Penn.). (1401.)
Very common.

367. Gallinula chloropus (Linn.). (1402.)
Common.

368. Gallicrex cinerea (Gmel.). (1403.)
A fair number on the lake at Fort Stedman.

369. Porphyrio poliocephalus (Lath.). (1404.)
Very common on the Fort Stedman lake. The boatmen there say that these birds are very good eating.

370. Fulica atra Linn. (1405.)
Common.

371. Grus sharpii Blanf. (1410.)
Fairly common.

372. Metopidius indicus (Lath.). (1428.)
Very common up to about 3500 feet. I got a chick of only a few days old on the Fort Stedman lake in July.

373. Hydrophasianus chirurgus (Scop.). (1429.)
Extremely common.

374. Sarcogrammus atrinuchalis Blyth. (1431.)
Very common.

375. **Charadrius fulvus** Gmel. (1439.)
Fairly common at the beginning of the cold season, but does not stay in any large numbers throughout it.

376. **Ægialitis dubia** (Scop.). (1447.)
Common.

377. **Himantopus candidus** Bonn. (1451.)
Very common and conspicuous, especially on the river from Fort Stedman lake to Loikaw.

378. **Numenius arquata** (Linn.). (1454.)
There are always a few Curlews to be met with at the beginning of the cold season on the Fort Stedman lake. I am sure that I have seen *Limosa belgica* (Gmel.), but I have never shot one in the Shan States.

379. **Totanus hypoleucus** (Linn.). (1460.)
Common.

380. **Totanus glareola** (Gmel.). (1461.)
Very common.

381. **Totanus ochropus** (Linn.). (1462.)
Common.

382. **Totanus calidris** (Linn.). (1464.)
Common.

383. **Totanus glottis** (Linn.). (1466.)

384. **Tringa subminuta** Middend. (1475.)
Very common.

385. **Scolopax rusticula** Linn. (1482.)
Probably fairly common in suitable places above about 4000 feet. A certain number are shot at Tounggyi every year.

386. **Gallinago nemoricola** Hodgs. (1483.)
Fairly common, as the last. I have one skin obtained near Bampon by Capt. W. S. Prentis.

387. **Gallinago cælestis** (Frenzel). (1484.)
I think that this is the commonest Snipe at the beginning of the season, while the next species takes its place later on.

388. **Gallinago stenura** (Kuhl). (1485.)

389. **Gallinago gallinula** (Linn.). (1487.)
Common in the Shan States as compared with most places in Burma. I have had six specimens in a bag of Snipe in one day.

390. **Rostratula capensis** (Linn.). (1488.)
Very common round the Fort Stedman lake.

391. **Larus brunneicephalus** Jerd. (1491.)
Very common in the cold season on the Fort Stedman lake; most of the birds in juvenile plumage.

392. **Hydrochelidon leucoptera** (Meisner & Schinz). (1497.)

393. **Sterna seena** Sykes. (1503.)
Very common.

394. **Sterna melanogaster** Temm. (1504.)
A few of these birds are seen on most of the days when people go out shooting on the Fort Stedman lake in the cold season. There are some other Terns found there, but I have not obtained specimens of them.

395. **Phalacrocorax carbo** (Linn.). (1526.)
Common.

396. **Phalacrocorax javanicus** (Horsf.). (1528.)
Very common.

397. **Plotus melanogaster** (Penn.). (1529.)
Common.

398. **Ibis melanocephala** (Lath.). (1541.)

399. **Plegadis falcinellus** (Linn.). (1544.)
Fairly common.

400. **Dissura episcopus** (Bodd.). (1548.)
Common.

401. **Xenorhynchus asiaticus** (Lath.). (1549.)

402. **Leptoptilus dubius** (Gmel.). (1550.)
A fair number are seen every rainy season.

403. **Pseudotantalus leucocephalus** (Penn.). (1552.)
Fairly common.

404. **Ardea manillensis** (Sharpe). (1554.)

405. **Ardea cinerea** Linn. (1555.)
Only one specimen obtained, but I did not collect Herons very keenly.

406. **Herodias alba** (Linn.). (1559.)
Not common, but I have been told that it was so some years ago.

407. **Herodias garzetta** (Linn.). (1561.)

408. **Bubulcus coromandus** (Bodd.). (1562.)
Fairly common.

409. **Ardeola grayi** (Sykes). (1565.)
Common.

410. **Ardeola bacchus** (Bonap.). (1566.)
Obtained at Fort Stedman and at Bampon.

411. **Butorides javanica** (Horsf.). (1567.)
Common.

412. **Nycticorax griseus** (Linn.). (1568.)
Common.

413. **Gorsachius melanolophus** (Raffles). (1569.)

414. **Ardetta cinnamomea** (Gmel.). (1572.)
Not uncommon.

415. **Anser erythropus** Linn. (1581.)
Two examples of this species were killed by Capt. H. C. Bernard, of the 4th Burma Battn., in 1898, and he was good enough to give me one of them. This is the only Goose which I have obtained in the Shan States, but I am quite sure that I have seen *A. ferus* on the Fort Stedman lake.

416. **Sarcidiornis melanonotus** (Penn.). (1584.)
Fairly common.

417. **Casarca rutila** (Pall.). (1588.)
A fair number visit Fort Stedman lake every year.

418. **Dendrocycna javanica** (Horsf.). (1589.)
Very common.

419. **Dendrocycna fulva** (Gmel.). (1590.)

420. **Nettopus coromandelianus** (Gmel.). (1591.)
Very common.

421. **Anas pœcilorhyncha** Forst. (1573.)
The specimens which I have sent or taken to England turn out to be of this species. I have sent them from as far east as Mongnai. The absence of red spots at the base of the bill does not, as I had formerly believed, prove a bird to be *A. zonorhyncha*, and, after comparison with specimens in the Nat. Hist. Museum, South Kensington, I have come to the conclusion that I have not met with that species in the Shan States.

422. **Chaulelasmus streperus** (Linn.). (1595.)
Fairly common at the Fort Stedman lake. In any large bag of Duck made on it there are sure to be some Gadwalls.

423. **Nettion crecca** (Linn.). (1597.)
This species and the Blue-winged Teal, *Querquedula circia*, remain with us up to the beginning of May. They are both plentiful.

424. **Mareca penelope** (Linn.). (1599.)
A fair number visit the Fort Stedman lake every year.

425. **Dafila acuta** (Linn.). (1600.)
Common.

426. **Querquedula circia** (Linn.). (1601.)
Very common.

427. **Spatula clypeata** (Linn.). (1602.)
Fairly common.

428. **Netta rufina** (Pall.). (1604.)
Not common.

429. **Nyroca ferruginea** (Gmel.). (1606.)

430. **Nyroca fuligula** (Linn.). (1609.)
Not common.

431. **Podicipes albipennis** (Sharpe). (1617.)
Common. An enormous number of these birds are to be found on the Fort Stedman lake.

XL.—*An Introduction to the Study of the* Drepanididæ, *a Family of Birds peculiar to the Hawaiian Islands.* By ROBERT C. L. PERKINS, B.A.*

REMARKABLE as are some other members of the Hawaiian Avifauna, yet it is upon the Drepanine birds that the interest of the ornithologist will always be centred. The Drepanididæ, as here considered, include thirty-six species, belonging to no less than eighteen genera. One genus with one species is restricted to the outlying island of Laysan, as is also a second species not generically peculiar, both being included in these remarks on the family, although with the rest of the Laysan Avifauna they may be excluded from the list of Hawaiian forms. The total number of species here cited is rather less than that given by the latest writers on the Archipelago, owing to the fact that several forms which have been described as distinct appear to be quite unworthy of such rank.

1. *Small proportion of Species as compared with Genera.*

If we compare the Drepanine birds with the peculiarly Hawaiian families in other groups of animals, we are at once struck by the very large number of genera accepted as compared with species. No doubt this is partly due to the very different value attached to characters supposed to be generic by systematic workers in different lines, and also to the large size of birds as compared with many other creatures, owing to which their characters are obvious on the most casual inspection. If we compare the Drepanididæ with such a family as the Proterhinidæ in the Beetles, which is also peculiar to the Hawaiian Islands, we do not find the latter susceptible of easy division into well-marked genera as in the birds; indeed, at present the members are all included in a single genus. Yet to the student of both groups it is obvious that the extreme forms of the Proterhinidæ exhibit differences of structure as great and varied as are found in the extreme forms of the Drepanididæ; in fact the variety of structure is probably greater in the beetles. If, however, we were to reduce the hundred and thirty species of *Proterhinus* to the number of species of the Drepanine birds, and particularly if in doing so we were to eliminate the osculant forms, it is manifest that the condition of the two groups would be strikingly analogous. It is therefore in my opinion clear that, making all allowance for the ease with which the one group is studied, and the relatively great difficulty presented by the other, there is a real and great difference between the Drepanididæ and the Proterhinidæ, and in fact between these birds and most of the other extensive and peculiarly Hawaiian groups of animals, and that the difference is due to the fact that while in the birds there has been a keen competition for existence between the various species and between the individuals of each species, in the Proterhinidæ there has been little or none, because the food-supply of the latter, consisting of dead wood, is in a forest-covered country almost unlimited. As will be hereafter noticed, there is good reason to believe that the competition between the birds has been much more keen in past times than during the more recent periods of their existence.

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* Communicated by the Joint Committee appointed by the Royal Society and the British Association for investigating the Zoology of the Sandwich Islands.

2. *Origin of the* Drepanididæ *doubtful.*

If we compare the Drepanididæ with other families of birds, it is obvious that, considering the few species that exist, they exhibit an unusual diversity of structure. As a proof of this, it is only necessary to mention the fact that competent ornithologists have repeatedly assigned to different families even those forms which *without any possible doubt* belong to the same. This diversity of structure must have required a vast time for its evolution, and the period at which the ancestral Drepanid immigrated to the islands must have been very remote indeed. Whether all the presently existing species of this group have been evolved from one original immigrant or from more we cannot say; but the former view is probably the more correct, although two ancestral immigrants might be admitted.

That the islands were originally stocked by *numerous* species which produced the present family is highly improbable, seeing that whole families of birds far better adapted to cross wide extents of ocean are quite unrepresented in the Hawaiian Islands, although we know that some of them thrive exceedingly when imported, and many others would no doubt do so under similar circumstances.

Whence the ancestors of the present Drepanine birds came is, owing to their dubious relationships with outside forms, still an open question; though if it were certain that their closest relationship was, as Dr. Gadow has suggested, with the Cœrebidæ, little doubt would remain as to their American origin. For the present it is safer to consider them, with other peculiarly Hawaiian groups, as being of unknown origin.

3. *Two Groups of Hawaiian Drepanine birds exist, indicating either two distinct original immigrants or, more probably, very early divergence from one ancestor in two directions.*

I have already stated that a dual origin for the present Drepanines is conceivable, and is indicated by the fact that they fall clearly into two groups. The first of these contains six genera, viz. *Drepanis, Drepanorhamphus, Vestiaria, Himatione, Palmeria,* and *Ciridops*; the second the remaining twelve.

The genera of the first group are characterized by the truncate apices of the primaries, except in the anomalous *Palmeria,* and by the plumage of the young, which is always partly black or of a dull colour. In the adults white markings are present either on the wings or on the upper parts of the body. The skin, moreover, is comparatively thick, and sometimes extremely tough and thick, as cannot fail to be noticed by the collector when using very small charges of powder and shot to procure specimens. The plumage of the sexes is identical or nearly so. Red colours are acquired by the adults of some species in both sections, but in a totally different manner; in the second group it is invariably through a green or olivaceous stage, while green-plumaged forms are never found in the young of the first group. In addition it may be noted that the songs and cries of the members of the first section are of a very different character from those of the second, between most of which there is a striking general resemblance in this particular. Further, all the members of the former which are known to me in life (*Himatione*, *Vestiaria*, *Palmeria*, and *Drepanorhamphus*) have a peculiar noisy flight, so that the sound caused by their wings, when they fly freely, can be heard at a long distance.

In the second group the primaries are never truncate at the apex; the young, moreover, are invariably clothed to a large extent in green or olivaceous plumage; and this colour nearly always persists in the adult female, although it may be totally lost in the adult male. Such is the case in several species of *Loxops*, the green coloration in this genus being largely permanent in the male of the Kauaian species only (*L. cæruleirostris*). There are almost always well-marked distinctions of colour between the adults of either sex. In a few forms which retain in the adult male and female the green plumage characteristic of immature birds (e. g., *Viridonia* and *Chloridops*) there is little or no difference in the colour of the sexes; but very rarely is this the case when the adults acquire a special coloration, as in *Loxioides*, in which the head is yellow, though somewhat less brightly coloured in the female.

To those who believe in the great significance of the very different character of the coloration of the young birds in these two groups (whatever change may take place in the adults), as well as of the development of striking sexual characters throughout nearly the whole of one of them, the necessity of distinguishing clearly between them will be apparent.

4. *Development of Species in each Group along similar lines, and the reason for the same.*

When we examine, side by side, a full series of the forms it is obvious at a glance that each group has developed along similar lines. *Himatione* and *Palmeria* of the first are in general structure very like *Chlorodrepanis* and *Viridonia* of the second; *Drepanis* and *Drepanorhamphus* resemble *Hemignathus*; *Ciridops* may be compared with *Loxops*.

With *Ciridops* in one direction the evolution of forms in the first group ceases, while from *Heterorhynchus* the second proceeds through *Pseudonestor* to a series of thick-billed birds quite unrepresented in the first. Consequently in discussing these remarkably analogous forms the six thick-billed genera will here be excluded. Turning to the habits of the birds of the remaining twelve genera, eleven of these certainly and all probably (the habits of *Ciridops* being little known) contain at least some species accustomed to feed on nectar *. *At the present time* the main supply of this food is derived from the *Metrosideros*—the well-known "Ohia-lehua" of the natives, and the predominant tree in the forests of all the islands. Around the masses of red blossoms of these trees may be seen at the proper season an assemblage of various kinds of birds, the scarlet "Iiwi" (*Vestiaria*) and the green or yellow "Akialoa" (*Hemignathus*)—both with long curved beaks,—the crimson "Apapane" (*Himatione*) with moderate straight bill, and the green "Amakihi" (*Chlorodrepanis*) with moderate curved bill. The observer wonders for what purpose such extraordinary developments can have taken place. On the same flowers are numerous bees peculiar to the islands, shortest of all short-tongued bees, with a tongue one millimetre long, yet as well able to feed on the nectar as the "Akialoa" with its tongue of two inches or more. An examination of the *Metrosideros* tree will shew that it is a species not peculiar to the islands, although, as above remarked, it forms so large a part of the whole forest. In its specific characters it is in a remarkably unstable condition, exhibiting many striking variations, as though it were now in process of being differentiated into several species. Many of these variations are of constant occurrence and widely spread; some are deemed worthy even of specific rank.

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* Not that nectar is ever the *sole* food, though a most important source of nutriment—so important to the adults of some species that at certain seasons no individual shot contains any trace of insect food. Few Hawaiian insects frequent flowers, and such as do, viz. one or two beetles and the Hymenoptera, are seldom if ever found in these birds' stomachs. Nectar is undoubtedly absolutely necessary to the existence of *Himatione*, *Chlorodrepanis*, *Vestiaria*, *Hemignathus*, and *Drepanis*, as they are constituted; small moths, caterpillars, and spiders—their other food—would certainly fail them at certain seasons. The honey-sucking Drepanids and the Moho can be kept alive on nectar and sugar-cane juice. When a species becomes purely insectivorous here, it shows extreme modification, e. g. *Pseudonestor* and some *Heterorhynchi*, so that it may obtain special insects inaccessible to other forms. In the introductory part of the 'Fauna Hawaiiensis' it will be necessary to give much space to comparisons between the birds, reptiles, molluscs, and insects, and between the insects themselves, as well as to the Botany of the Islands.

These facts appear to me to point to a comparatively recent "immigration" of this tree, and I cannot suppose that it has existed on the islands for the period of time which would have been necessary to produce the exceptionally great variety of structure exhibited by the Drepanididæ. Turning to other sources whence the food-supply may have been derived at a period antecedent to the arrival and spread of the "Ohia-lehua," we find very different conditions. All*, or practically all, the plants visited by these birds for food had bell-shaped or tubular blossoms, in which the nectar was more or less hard to reach. Of these tubular-flowered plants there are several predominant genera, some of which are themselves restricted to the islands, and belong to various families, comprising hosts of peculiar species. Most striking of all are the arborescent Lobeliaceæ, not closely related to forms found in other countries. The multiplicity of these peculiar plants, and their isolation from foreign forms, bears a striking resemblance to the state of affairs with regard to the Drepanine birds themselves, indicating likewise an extremely ancient occupation of the islands; and as the latter are the glory of the Hawaiian ornithologist, so are the former of the Hawaiian botanist. To these flowers Drepanids of both sections are still partial, and some particularly so, while the development of their extreme forms is not comprehensible without a knowledge of Botany. That there has been in the past severe competition for food between the various species which have similar habits, and between the individuals of each, cannot be doubted. The number of birds that can exist in a given area is obviously only that which can be supported when the food-supply is at a minimum. At the present day, when the "Ohia" is in bloom over miles of country, the food-supply seems inexhaustible; but between the flowering periods it is limited, and often leads to a decided migration of the birds either from one district to another, or to different elevations in the same district, where, owing to the varying climate, the trees blossom at different seasons. Certainly the arrival of the "Ohia" must have been a powerful agent in the increase of individuals of honey-sucking species; and the competition for food must have been much more keen previously. One can hardly doubt that the primitive Drepanid was a honey-sucker, and that the now purely insectivorous, as well as the thick-billed frugivorous forms, were a later development, although the honey-suckers were no doubt at all times partly insectivorous, as they are at present. With the increase of the insect-fauna there would certainly be a tendency among the honey-sucking forms to become more largely, or even entirely, insectivorous, as in fact has been the case. The examination of a series of species of the Lobeliaceæ will show great differences in the length of their flowers; and while in some the nectar can be reached by the moderate tongue of *Chlorodrepanis*, in others it can only be procured by the extremely long-billed and long-tongued forms of Drepanids, and the long-tongued Meliphagine Moho, the latter also a peculiar and probably very ancient denizen of the islands.

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* We exclude from consideration the *Eugenia*, a local species, the blooms of which are superficially like those of *Metrosideros* and are attractive to birds; it is known outside the islands, and was probably introduced by the early native settlers.

A series of observations made on one of the most superb of the Lobeliaceæ showed that it could only be fertilized by these highly specialized birds. In this species the pollen is mature before the stigma is exserted, by which time the pollen has vanished. The latter cannot be wind-borne, because it is shed in a viscid mass on contact, and so is constantly deposited on the bird's forehead, from which it is difficult to remove it. With these considerations in view the cause of the development of the most remarkable forms in each group of birds becomes manifest, and this cause has produced *Hemignathus* in the one, and *Drepanis* in the other, so like one another in general structure, while really but remotely allied. How easily the extraordinary lengthening of the bill, to which the resemblance is mainly due, may have taken place, side by side with the increasing length of the tubular flowers, is apparent from the fact that in some of the species there is even now individual variation in this respect. It should also be stated that in immature specimens the beak is much shorter, and that in the freshly-hatched young of *Chlorodrepanis* it is a short wide member, instead of having a slender curved form as in older birds. In the long-billed forms the mandibles are almost invariably shorter in the more "conservative" females, which in my second group retain in the adult the more primitive coloration of the young, though the males assume a totally different dress.

5. *Transition from a largely Vegetable Diet to purely Animal Food.*

Of the genera *Loxops, Oreomyza,* and *Heterorhynchus* the members are mainly insectivorous, but each comprises some species which at times feed on the nectar of flowers. In *Loxops* and *Heterorhynchus* the tubular character of the tongue is fully preserved, yet they very rarely feed from flowers, and some of the species perhaps never do so. Certainly that of the latter genus which is found on Hawaii is purely insectivorous, feeding, after the manner of a Woodpecker, on beetles and other insects; but the other three allied species are less adapted to such a life, and the Maui form has been known to me to visit blossoms as a very rare occurrence, while the partiality that the extinct species of Oahu had for banana flowers was often noticed. That these birds, even when purely insectivorous, still retain the characteristic Drepanid tongue, is clearly due to the fact that it remains a most efficient organ for obtaining insect food—in *Heterorhynchus* for extracting the wood-boring beetles of which it is so fond; and in *Loxops* for securing caterpillars which live in the terminal buds of some forest trees, not to mention other purposes. In *Oreomyza*, on the other hand, the tongue is much degraded from its normal structure, while only two of the species, and those but on the rarest of occasions, have been seen to suck honey, and then only from the shallow "lehua" flowers. The genus is almost entirely insectivorous and feeds chiefly on exposed caterpillars, spiders, and moths.

6. *The Thick-billed Species of the Second Group.*

There still remain to be considered the thick-billed species of the second division of the Drepanines which have no similar forms in the first.

There are seven such forms, distributed in no less than six genera, one of the latter (*Psittacirostra*), with its single unmodified species, ranging over the whole group of forest-bearing islands. One species of a peculiar genus (*Telespiza*) is restricted to the outlying island of Laysan; another, also forming a peculiar genus (*Pseudonestor*), is found only on the mountain of Haleakala in Maui; while three peculiar genera with four species are confined to the large island of Hawaii, namely, *Rhodacanthis* with two species and *Loxioides* and *Chloridops* each with one. It is now generally conceded that all these forms are only extreme modifications of the more normal Drepanines. In my published notes it is true that I placed this section under the Fringillidæ, but I did so merely in deference to the opinions of systematic workers, Messrs. Wilson and Evans and Rothschild, and more particularly to those of Dr. Gadow, who had availed himself of the opportunity of carefully studying the different forms side by side, whereas at that time I had secured no such facilities. Personally I was convinced that all belonged to one family—whether called Drepanididæ, Fringillidæ, or otherwise,—and always maintained this in my correspondence against general opposition, and that too at a time when Mr. Rothschild himself was setting forth descriptions of the Drepanines under such diverse families as Fringillidæ and Meliphagidæ! Although biological considerations first suggested to me the common origin of all the present family—honey-suckers and thick-billed birds alike—yet at a very early period[*] of my study of these birds I had excellent reasons apart from such for my belief. Before the body of the first ***Pseudonestor*** obtained by me was cold I was well aware that its tongue was essentially Drepanine and little modified, and that it indicated a positive connecting-link between the thick- and thin-billed sections, being, in fact, more typically Drepanine than that of the otherwise normal ***Oreomyza***. The tongue of ***Psittacirostra*** likewise was taken from the bird immediately it fell to show that it was truly Drepanine, although much modified. In a hot country such parts should always be preserved immediately, as after a day's collecting they are liable to dry up and their appearance to become changed. The characters afforded by the nostrils and their opercula in all the important forms, as well as the pattern of colour, had been under my consideration as early as 1894, and it is doubtful whether any other important characters have been advanced since that time.

It is still my belief that the biological reasons on the strength of which I first concluded that all these birds belonged to one family are of the utmost importance, chief amongst which is the peculiar odour to be noticed in both groups, in the thin-billed and thick-billed forms alike. So far as Hawaiian birds are concerned, this odour is ***absolutely restricted*** to the Drepanines. Mr. Rothschild in his work on Laysan makes the astonishing statement that the Meliphagine Moho has a similar and even more powerful odour; but this is only one of those errors which, for want of due care, the museum naturalist is liable to make in opposing facts ascertained and proven in the field. The explanation is very simple: the Moho (***Acrulocercus***) ***freshly***

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[*] It should be mentioned that a long time previously Dr. Sclater (*cf.* Ibis, 1871, p. 559) had, after a careful study of various Hawaiian forms, expressly declared his opinion that two of the Finch-billed genera (*Psittacirostra* and *Loxioides*) were true Drepanines and related to *Heterorhynchus*—an opinion without doubt correct, since *Pseudonestor* is the connecting-link. It was not until long after I had come to the conclusion that not only these but also the most thick-billed genera were decidedly Drepanine, that Dr. Sclater's views became known to me.

killed or *alive* * has no such odour. The specimens supposed to possess it had no doubt been enclosed in boxes with Drepanines, or when collected in the field had been placed in a bag with them, and had thus become impregnated with their odour.

This odour, as I have pointed out in my former notes, cannot be acquired from the food, because it is found in forms of such diverse habits—*e. g.*, in *Drepanorhamphus* at times when it is feeding solely on the nectar of flowers, in weevil-eating *Heterorhynchus*, in *Psittacirostra* when it is devouring the red fruit of *Freycinetia*, in *Chloridops* when the sole contents of the crop are the seeds of the bastard sandal. Neither the Meliphagine birds nor the Flycatchers, when feeding in the same trees and on the same food as Drepanines, possess any such smell. All these facts point to the odour as being an ancestral character in the Drepanididæ.

In this connexion it may further be remarked that the song of the thick-billed *Pseudonestor* is practically identical with that of the various species of *Heterorhynchus*, which have always been allowed to be Drepanines, and that *Telespiza*, living isolated on the island of Laysan hundreds of miles distant from its allies, has a song similar to both. I shall not easily forget my astonishment when I first heard it on passing a house in Honolulu, and found on enquiry, not the expected *Heterorhynchus*, but *Telespiza*! Possibly the latter may have other notes, but the fact remains that the song I heard was note for note the same as that of the former species, and I heard it repeatedly.

7. *Cause of Frugivorous Habits in the Thick-billed* Drepanididæ.

The thick-billed frugivorous Drepanids, like the purely or almost purely insectivorous members of the family, have no doubt assumed the habit for the same reason as the latter, viz. the competition for food, rendered unusually keen from the exceptionally small area of distribution. The development of the beak and the loss of the elaborate sucking-tongue have naturally followed. In this connexion it is interesting to note that the rather strong-billed *Chlorodrepanis stejnegeri* of Kauai, so far as I know, stands alone amongst the brush-tongued forms in feeding freely on fruits; for at certain seasons it voraciously devours the berries of the poisonous *Wikstrœmia*, in the same manner as *Phæornis*. Such a species—becoming more and more frugivorous and abandoning flowers for fruits—may be considered as potentially the ancestor of a new series of thick-billed forms; at present it is largely a honey-sucker, largely insectivorous, and on occasion largely frugivorous. A line may be traced among the thick-billed forms of Hawaii through the purely insectivorous *Pseudonestor* to the largely frugivorous, but still largely insectivorous, *Psittacirostra*, ending in *Chloridops*, which has become almost entirely frugivorous.

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* The writer has on more than one occasion had *A. nobilis* alive.

8. *Distribution of Genera in the Islands.*

The distribution of the genera within the group is very unequal, only five of the eighteen having a range which covers all the islands that are forest-clad. These are *Vestiaria*, *Himatione*, *Chlorodrepanis*, *Oreomyza*, and *Psittacirostra*. Three others, *Hemignathus*, *Heterorhynchus*, and *Loxops*, are found on four islands, a species of each inhabiting Kauai and a second Hawaii, the two extreme forest-bearing islands of the Archipelago. One, *Palmeria*, inhabits only Maui and the neighbouring island of Molokai. *Drepanorhamphus* is peculiar to Molokai, *Pseudonestor* to Maui, *Telespiza* to distant Laysan. Hawaii has no less than six genera peculiar to itself—*Drepanis*, *Ciridops*, *Viridonia*, *Loxioides*, *Rhodacanthis*, and *Chloridops*.

9. *Distribution of Species.*

The distribution of the species is fully given in the table (p. 574). One form, *Heterorhynchus lucidus*, is almost certainly extinct, while several others, if not extinct, are so extremely rare as to be very nearly so. On examining the table of distribution it is at once noticeable that the birds may be divided into two very strongly contrasted classes.

Table of the Distribution of the Species of the Drepanididæ.

	HAWAII.	MAUI.	MOLOKAI.	LANAI.	OAHU.	KAUAI.	LAYSAN.
Drepanis	*pacifica.*						
Drepanorhamphus	......	......	*funereus.*				
Vestiaria	*coccinea.*	*coccinea.*	*coccinea.*	*coccinea.*	*coccinea.*	*coccinea.*	
Palmeria	......	*dolii.*	*dolii.*				
Himatione	*sanguinea.*	*sanguinea.*	*sanguinea.*	*sanguinea.*	*sanguinea.*	*sanguinea.*	*freethi.*
Ciridops	*anna.*						
Hemignathus......	*obscurus.*	......	.....	*lanaiensis.*	*ellisianus.*	*procerus.*	
Heterorhynchus	*wilsoni.*	*affinis.*	......	......	*lucidus.*	*hanapepe.*	
Pseudonestor	......	*xanthophrys.*					
Viridonia	*sagittirostris.*						
Chlorodrepanis	*virens.*	*virens*, var.	*virens*, var.	*virens*, var.	*virens*, var.	*parva* and *stejnegeri.*	
Loxops	*coccinea.*	*ochracea.*	......	......	*rufa.*	*cæruleirostris.*	
Oreomyza	*mana.*	*newtoni.*	*flammea.*	*montana.*	*maculata.*	*bairdi.*	
Psittacirostra	*psittacea.*	*psittacea.*	*psittacea.*	*psittacea.*	*psittacea.*	*psittacea.*	
Loxioides	*bailleui.*						
Telespiza	......	......	......	......	......	......	*cantans.*
Rhodacanthis	*palmeri* and *flaviceps.*						
Chloridops.......	*kona.*						

Thus *Oreomyza* is represented by a distinct species on each of six islands, as are also *Hemignathus, Heterorhynchus,* and *Loxops* on each of four. On the other hand, *Himatione, Vestiaria,* and *Psittacirostra* range over the whole main group, each with a single unmodified species. *Chlorodrepanis* occupies an intermediate position with two very distinct forms on Kauai, and another form, sometimes considered divisible into three or more species, ranging over the remaining islands. Of these, however, the distinguishing characters are so slight that it is questionable whether they are worthy even of subspecific rank, and in any case such characters are by no means to be considered equivalent to those which separate the different species of *Oreomyza*. The latter are clearly the results of isolation, one island having been colonized by a species from another, which has subsequently acquired peculiar characters. It might be supposed that the birds in the other class which shew no change on the various islands are in some way less susceptible to the effects of isolation. Probably this is not the case, and the true explanation is to be found in considering the habits of the members of the different genera.

Himatione, Vestiaria, and *Psittacirostra* are all birds which take extensive flights, often at a great height in the air, and frequently form small companies in these flights. If we stand on the main ridge of some of the islands the birds may be seen passing high overhead from leeward to windward or *vice versâ*. All freely traverse open country, in passing from one feeding-ground to another. Consequently when storms arise they are extremely likely to be carried across the channels between the islands, and no doubt this often happens. The birds of the other class, such as *Hemignathus, Oreomyza, Heterorhynchus,* &c., do not take these extensive flights, but keep closely to the forest, very rarely—and most of them never—venturing into the open. Very seldom would they be likely to get blown across from one island to another. In short there is little doubt but that individuals of *Vestiaria* and its class are transferred from one island to another sufficiently often *to prevent any true isolation,* which is not the case with the other class. Who can fail to believe that a *Loxops* or a *Hemignathus* would have prospered on Molokai had they ever reached that island? Although *Himatione* ranges unchanged over six islands, yet after, by some remote chance, reaching the very distant Laysan it has there developed into a distinct form; and the case of the two extreme forms of *Chlorodrepanis* on the rather distant island of Kauai is also greatly in favour of my hypothesis.

That any of the Drepanine birds cross even the narrowest channels between the islands *willingly* is not to be thought of. In times of storm they are often blown down to the lowlands, sometimes in considerable numbers, in which case they mostly fail to regain the forest and perish after a few days. The only birds that I have myself picked up dead (sometimes in numbers) on the coast after these storms are of the genera *Vestiaria*, *Himatione*, and *Psittacirostra*; in fact, the very forms which by their habits are most liable to be carried away by the wind. Further, it is well known that, after stormy weather, the two former sometimes reach the bare island of Niihau, across the considerable channel which separates it from Kauai, but they cannot live there long on account of its unsuitable nature. No doubt the majority of these unwilling emigrants perish, but it is certain that those blown from a high elevation on one island must not infrequently land in suitable forest-country on one of the others.

10. *Richness of the Island of Hawaii in peculiar Forms.*

The relative richness in birds of Hawaii, with its eleven peculiar species and no less than six peculiar genera, is manifest and interesting, since in other groups of animals with highly peculiar species it is frequently (though not invariably) extremely poor, as compared with the older islands of the group. Probably its large area and very varying climate has favoured the multiplication of peculiar forms, while it must not be forgotten that, owing to its position at the end of the group of islands, it is incapable of sending forth emigrants except in one direction. That this is of importance is rendered more likely from a consideration of the Drepanines of Kauai, at the other end of the group of forest-clad islands. Kauai, it is true, has no peculiar generic forms, although geologically so much more ancient than the large island; but being the most distant of the group, as well as at one extremity of the series of islands, its two species of *Chlorodrepanis* are by far the most isolated, its *Hemignathus* and *Loxops* are similarly circumstanced, while in the Meliphagines its Moho is very different to the other forms, which are closely allied *inter se*, and in the Turdidæ it has the two extreme forms of *Phæornis*. No doubt its small area and comparatively constant climate tend to render it much less rich in Drepanines than Hawaii.

11. *Extreme Specialization of many Forms of Drepanine Birds.*

If, as is natural, we consider the primitive form of Drepanid to have been structurally very similar to such birds as are now comprised in the genera *Himatione* and *Chlorodrepanis*, and side by side with these place such forms as *Loxops*, *Drepanorhamphus*, *Heterorhynchus*, and *Chloridops*, the remarkable specialization of the latter is at once apparent, though we are still able to examine connecting forms. To me this specialization indicates the severe competition that has taken place between the Drepanines in past ages. When a vast portion of the food-supply was derived from the blossoms of flowers, and this source of food, as I have shown, was relatively small to what it became later, change to a purely insectivorous, or largely frugivorous, diet must have been very advantageous to the individuals concerned, and the greater the specialization which resulted in obtaining some particular food (provided that it was sufficiently abundant), the greater the advantage to the species. To the field-naturalist who has examined many specimens of such a form as *Pseudonestor* at various seasons and found that its food consists essentially of the larvæ of a group of longicorn beetles peculiarly Hawaiian, and not less remarkable than the Drepanids themselves; who has seen how perfectly modified it is for obtaining these; how perfectly adapted is the bill of such a form as *Drepanorhamphus* for obtaining the nectar from the deep tubes of the giant-blossomed Lobeliaceæ, inaccessible to other birds; how wonderful is the form of *Heterorhynchus*, which delights in the hard boring weevils, themselves equally noticeable; how powerful are the muscles of the head and beak of *Chloridops*, which can crack the stones of the ripe fruit of the bastard sandal; the extraordinary advantage of this specialization in each form for acquiring a constant supply of food almost or quite inaccessible to its allies, and that too in a country where the small land-area may be supposed to have rendered competition unusually keen, must appeal with the greatest force.

12. *High Specialization may become a Source of great Danger.*

This high degree of specialization, although of the greatest benefit under stable conditions, with a change of these obviously becomes a source of great danger. Thus, destroy the special food-supply of the birds mentioned above, and there is little doubt but that most of them would very quickly become extinct; for forms so perfectly adapted for special ends are, under ordinary circumstances, but ill-adapted to change their mode of life; and it is amongst such forms that most of the rarest species are found, while a considerable number of them already verge on extinction. It is probable that this state of things has largely been brought about by man, and in particular by the destruction of the lowest forest. Even now, in winter storms, large numbers of birds resort to the lowest skirts of the existing forest, generally at an elevation of 1200–1500 feet; and it is well known that in Cook's time such forms as *Psittacirostra*, *Himatione*, and *Chlorodrepanis* actually came down to the coast in Kealakeakua Bay, though now such flights would mean death to the visitants. Moreover, at these lower altitudes the flowering-season of most plants is different from that in the uplands, and they must have been an important source of food at seasons when it was scarce elsewhere.

13. *Other Causes of Extinction of Hawaiian Birds.*

Although the destruction of the lowest belt of forest over by far the greater part of the islands has, in my opinion, been a most efficient cause of the destruction of native birds, many other causes have been at work, all of which are due to the occupation of the islands by white men. Such causes are the introduction of cattle and goats, which have extirpated or very much thinned out great portions of the native forest; of cats, foreign rats, and the mongoose (which are direct enemies), as well as of the Mynah, which not only attacks and drives away other birds, but also devours their eggs and young. The disturbance caused by the entrance of cattle into untrodden forest appears to be alone sufficient to scare away some species. Thus, on a very rough lava-flow on Hawaii in 1892, the "Oo" (*Acrulocercus nobilis*) was very numerous, and as many as a dozen of these birds could be seen in a single tree, making, with hosts of the scarlet "Iiwi," the crimson "Apapane," and other birds, a picture never to be forgotten. A few years afterwards, on revisiting the spot at the same season, although the trees were, as before, one mass of flowers, hardly a single "Oo" was to be seen. The only noticeable change was that cattle were wandering over the flow and beginning to destroy the underbrush, just as they had already reduced the formerly dense forest bordering the flow to the condition of open park-land.

Cats were introduced into the Hawaiian Islands at a very early time, and, no doubt, increased excessively, while, as their owners moved from place to place, many strayed into the woods and began to feed on mice, rats, and birds. They are now found wild on all the islands, apparently only the wettest portions of the forest being free from them. On Lanai, in walking up a single ravine, I counted the remains of no less than twenty-two native birds killed by cats, and these must all have been destroyed within two days, as previously the whole gulch had been washed out by a heavy flood. Two cats were actually shot on this occasion as they were devouring their prey, and several others seen, but, owing to the fact that they are extremely shy and mostly nocturnal in habits, few people who have not lived much in the woods have any idea of their numbers. The common rat is also quite at home in the forests and is decidedly arboreal in habits, feeding on fruits, land-molluscs, and no doubt on birds. The Mynah, which I have myself seen devouring both young and eggs of other species, has increased prodigiously, and probably exceeds in numbers the whole of the native land-birds put together. It has greatly extended its range through the forest since 1892, and on some of the islands is now ubiquitous.

14. *Songs of Drepanine Birds.*

None of the Drepanids can be considered first-class songsters. The "Ou" (*Psittacirostra*) and the "Palila" (*Loxioides*) are, when at their best, distinctly pleasing, and surpass all the others. The "Akialoas," especially *Heterorhynchus*, have a song full of vigour, yet not beautiful nor sustained, but always delightful to hear, as being an expression of the highest contentment. This energetic outpouring of melody is noticeable likewise in *Pseudonestor*, *Hemignathus*, and *Chlorodrepanis*, the songs of all of which, as also those of *Loxops* and *Oreomyza* (when it does sing), bear a general similarity to one another. *Pseudonestor* and *Heterorhynchus* have an identical song; that of *Viridonia* is the same as that of *Chlorodrepanis*, with two or three notes added at the end. *Rhodacanthis* whistles several notes, which to anyone walking through the woods might appear to be rather the utterance of a man than of a bird. The songs of the other group of Drepanids are quite different. That of the "Iiwi" (*Vestiaria*) is harsh in the extreme. The song of the "Apapane" is short, monotonous, and often repeated, but not unpleasing. It has a singularly plaintive call-note. The "Mamo" (*Drepanis*) and the allied form on Molokai have an identical cry, except that in the latter at its best it is probably much louder. The song of *Palmeria* is peculiar, as it makes a remarkable vibrating or gurgling sound. In spite of the dissimilarity in the normal songs or cries of the birds of this section, most of the different forms frequently utter calls or notes very similar to one another. They are more varied than the almost universal squeak of the call or alarm-note of the green-feathered section.

The subjoined list will enable anyone to distinguish at a glance the various genera of Drepanididæ. More characters are frequently given there than are necessary for merely separating the different forms, especially where these characters appear to me to be of great importance. It is only necessary to add that the views expressed in this paper on the Drepanine birds have not been formed off-hand, but are the results of much study and observation, extending over a period of ten years, six of which have been spent in the islands themselves, for the most part in the haunts of the various species. As the writer has had the opportunity of seeing many of the rarest forms—not a few individuals only, but scores or hundreds—he has had ample opportunity for careful study of the habits, without the need or desire to kill a valuable specimen whenever seen. For this reason the biological considerations may be held to be of more importance than would be the case were they based on a mere superficial study extending over a short period of field-work.

Table of Genera of Drepanididæ.

1 (2). Apices of some of the primaries truncate, *or* if not truncate, then the front of the head bearing a large crest of narrow curved feathers, which overhangs the base of the beak.

Plumage of upper parts always partly black, the rectrices always black (sometimes white-tipped), the wings always at least largely so.

White markings always present in the adult, either on the wings or upper parts of the body, at times confined to the outer web of some of the primaries.

Young birds with body-feathers always of a black or dark obscure colour, either wholly or in part; when with many pale feathers (*Vestiaria*), then these are spotted with black .. DIVISION I.

2 (1). Apices of primaries never truncate; head never with a crest of narrow curved feathers.

Plumage of adults never in the least black above, not even the tail black.

Young birds never clothed with black or dark obscure plumage, nor black-spotted, but always largely green or olivaceous. DIVISION II.

DIVISION I.

1 (6). Beak very long and strongly curved, as long as or longer than the metatarsus.

2 (5). Beak black, wholly or in great part; plumage mainly black or black and yellow. Feathers of throat not modified.

3 (4). Plumage black and yellow; nasal opercula not very long .... *Drepanis.*

4 (3). Plumage not at all yellow; nasal opercula very much elongated .... *Drepanorhamphus*

5 (2). Beak entirely pale; plumage of adult scarlet, of young yellowish and black-spotted; feathers of throat much modified, narrow, and stiff .... *Vestiaria.*

6 (1). Beak never very long, straight or but little curved.

7 (8). A large crest of pale feathers curving over the base of the beak .... *Palmeria.*

8 (7). Head without a crest.

9 (10). Beak moderately long, sharply pointed; body-plumage not variegated with strongly contrasted colours .... *Himatione.*

10 (9). Beak rather Finch-like; body-plumage highly variegated .... *Ciridops.*

DIVISION II.

1 (4). Beak extremely long and one or both of the mandibles strongly curved, the upper one always so and very slender and delicate at its apical portion—so slender as often to be even slightly flexible.

2 (3). Upper mandible only a little longer than the lower, nasal setæ altogether wanting.... *Hemignathus.*

3 (2). Upper mandible greatly exceeding the lower (by from $\frac{1}{2}$ to $\frac{1}{3}$ its own length), nasal setæ well developed .... *Heterorhynchus.*

4 (1). Beak not of extraordinary length and much curved; if moderately long and curved, then the apical portion of the upper mandible not extremely slender and very little longer than the lower.

5 (14). Beak never of very robust form, like that of a Grosbeak, nor of heavy build, with the upper mandible conspicuously surpassing

the lower; if (as in *Loxops*) the beak is short and like that of a small Finch, then the lower mandible is more or less distorted either to the right or left, the tail is elongated and conspicuously forked, and the birds themselves are of very small size.

6 (13). Tail more or less short, not long and distinctly forked; lower mandible not deflected; beak not short and robust, like that of a small Finch.

7 (8). Beak straight, long, and strong, about as long as the metatarsus. (No well-marked sexual distinctions in plumage of adults. Tongue long, brush-like, typically Drepanine.) .... *Viridonia.*

8 (7). Beak curved or straight, if straight then much shorter than in 6.

9 (10). Beak more or less curved, generally distinctly so; nasal setæ always present and well developed. Tongue typically Drepanine, long, and brush-like. (Well-marked sexual distinctions in plumage of adult, the male much brighter in colour.) .... *Chlorodrepanis.*

10 (9). Beak straight or not curved as in 9; distinct nasal setæ or setiform feathers may be present or entirely wanting. Tongue abnormal, flattish, slightly cleft at the apex, not of the typical tubular brush-like form.

11 (12). Nasal setæ or modified setiform feathers well developed, so as to be able to shield the whole length of the nasal-openings. (Colour of sexes little differentiated.) .. *Oreomyza.*

12 (11). Nasal setæ or setiform feathers entirely absent, or at least very short and little developed, not able to shield the nasal openings. (*Sexual coloration of adults markedly different.*) .... *Paroreomyza* *, subgen. nov.: type *Oreomyza maculata.*

13 (6). Tail elongated, distinctly forked at apex; lower mandible more or less deflected; beak short, but stout, like that of a small Finch. (Tongue typically Drepanine.) .. *Loxops.*

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* Herein I place also the other three species with sexual dimorphism.

14 (5). Beak always strong, often excessively powerful and heavy, sometimes with the upper mandible conspicuously surpassing the lower. Robust birds, never very small.

15 (18). Beak with the upper mandible greatly or very greatly surpassing the lower in length, never very broad towards the base in dorsal aspect, more or less and sometimes very strongly compressed laterally. Body above with green plumage.

16 (17). Upper mandible very strongly flattened, or compressed laterally and high. Tail very short, as in *Heterorhynchus* Coloration of adults nearly similar in both sexes, each with only a yellow superciliary line on head. (Tongue not typically Drepanine, but more so than that of *Oreomyza*, rather elongated.) .... ***Pseudonestor.***

17 (16). Upper mandible not very strongly compressed laterally, subcariniform. Tail not extremely short. Colour of adults dissimilar in the two sexes, the male with crown of head bright yellow. (Tongue degraded from the typical honey-sucking organ, but Drepanine characters still distinguishable.) .... ***Psittacirostra.***

18 (15). Beak with upper mandible only slightly (though distinctly) surpassing the lower in length and more swollen laterally, often very much so, so that in most forms the nasal openings appear to be quite dorsally placed and the beak very broadly rounded above. Colour of plumage of body above not always green.

19 (20). Beak strong, but not excessively powerful and heavy, much less so than in the following. Plumage of body above ashy grey in adults. Colour of sexes a little different, the yellow of the head in female less bright .... ***Loxioides.***

20 (19). Beak excessively heavy and powerful. Plumage of body above not ashy grey.

21 (24). Upper mandible in dorsal aspect of very elongate triangular form. Upper and lower mandibles well adapted to one

another. Male at least with the plumage of the head contrasting in colour with that of the upper parts of the body.

22 (23). Beak with cutting-edge of lower mandible distinctly and evenly curved on the apical part. Immature birds without dark spots above. (Very great differences in colour between the sexes when adult, the female remaining much like the young of either sex.) .... *Rhodacanthis.*

23 (22). Beak with cutting-edge of lower mandible not distinctly and evenly curved. Immature birds with dark spots .... *Telespiza.*

24 (21). Upper mandible in dorsal aspect with the sides not very strongly convergent to the apex, so as to form a very elongate triangle. Cutting-edges of mandibles irregular, so that they are not perfectly adapted to one another. Plumage of head in neither sex conspicuously different to that of the body above. (No marked difference in colour of sexes.) .. *Chloridops.*

The list of genera given above calls for a few remarks. In the first division the position of the abnormal *Ciridops* appears to me quite certain. Its characteristic black wings and tail, and the presence of white (not quite clear white) feathers, its scarlet plumage, to my mind so extremely like that of *Vestiaria,* and the blackish-grey feathers of the throat, so similar to what may be seen in *Palmeria,* leave no question as to its affinities. In the second division the ashy plumage of *Loxioides* appears aberrant at first sight, but it is noteworthy that others of the "green" section pass through a phase of plumage very similar to this (*e. g.,* certain species of *Loxops* &c.), which shews how easily it may have been acquired. *Telespiza* in the dark-spotted plumage of the young is also aberrant, but this condition does not appear to me comparable with the dark or black-spotted plumage of the first division. Its position in the second or green section is obvious, and *Rhodacanthis* might well be united with it generically.

XLI.—*On a Collection of Birds from Nyasaland.*

By Captain G. E. Shelley, F.Z.S.

Dr. Sclater has asked me to arrange and name a third collection of birds lately received from Lt.-Col. W. H. Manning, H.B.M. Deputy Commissioner for British Central Africa. It was made mostly in the country at the southern end of Lake Nyasa, which lies between 13° and 16° S. lat. and 33° and 36° E. long. It comprises 57 specimens from South Angoniland, collected in October 1900; 20 from Chalasulo, obtained in the last week in November; and 36 during the following months of December and January. In this collection of 113 specimens there are 75 species represented. Three of these—*Buphaga erythrorhyncha*, *Dicrurus ludwigi*, and *Lophotriorchis lucani*—are now recorded from Nyasaland for the first time.

The nomenclature of the 'Birds of Africa' is followed in the subjoined list, except where other references are given. After selection of the specimens required for the British Museum, the remainder will be sent to the South-African Museum, Cape Town.

1. Nectarinia kilimensis (op. cit. p. 2).

Angoniland. Long central tail-feathers not fully grown. Native name "*Songue.*"

2. Anthus rufulus (op. cit. p. 12).

Angoniland. Native name "*Ndula.*"

3. Macronyx croceus (op. cit. p. 13).

Chilasula. Native name "*Twanganji.*"

4. Emberiza major (op. cit. p. 18).

Angoniland. There can, I think, be no doubt that the types of *Fringillaria orientalis* (1882) and *F. major* (1880) belong to one species. With twenty-six specimens before me from Zomba and the surrounding district, I find that the amount of white on the chin and upper throat varies; the dark portion of the head is jet-black in full-plumaged males, brown in females and young birds. The variation in the extent of the pale central band on the crown depends on sex and age, and is entirely absent in some fully-grown young birds. The amount of white on the wing-coverts also depends solely upon age, for in some fully-grown young birds there is no white on the wing, and in these the upper parts are more rufous. . The wings vary in length from 2·8 to 3·4 inches.

5. Fringillaria tahapisi (op. cit. p. 18).
Angoniland.

6. Spermestes scutatus (op. cit. p. 28).
Chanda. Native name "*Chipinga.*"

7. Spermestes nigriceps (op. cit. p. 28).
(Not labelled.)

8. Estrilda minor Cab.
Maloza. Native name "*Chijojola.*"

9. Estrilda subflava (op. cit. p. 30).
Lindipe, near Matope. Native name "*Kajojola.*"

10. Hypargus niveiguttatus (op. cit. p. 32).
Angoniland. Native name "*Chipalanganga.*"

11. Ploceipasser pectoralis (op. cit. p. 34).
Lindipe. Native name "*Pelengaya.*"

12. Sycobrotus stictifrons (op. cit. p. 37).
Chilasulo.

13. Hyphanturgus ocularius (op. cit. p. 38).
Angoniland.

14. Xanthophilus xanthops (op. cit. p. 39).
Angoniland.

15. Oriolus notatus (op. cit. p. 41).
Angoniland. Native name "*Hisundambawala.*"

16. Oriolus larvatus (op. cit. p. 41).
Angoniland. Native name "*Lisondambamala*"; this name and that of the last species are probably the same.

17. Buphaga erythrorhyncha (op. cit. p. 41).
Mpimbi.

18. PHOLIDAUGES VERREAUXI (op. cit. p. 42).
Angoniland.

19. LAMPROCOLIUS SYCOBIUS (op. cit. p. 43).
Lindipe. Native name "*Likwilili.*"

20. DICRURUS LUDWIGI (op. cit. p. 47).
Chilasulo. This Drongo is now recorded from British Central Africa for the first time.

In habits it is essentially a bird of the thick bush, and differs in this respect from the forked-tailed species, such as *D. afer*, which are generally seen on the tops of shrubs in the open country. It apparently ranges from Port Natal, where the type was obtained by Sir Andrew Smith, to the Congo and Tana Rivers, and, according to Dr. Reichenow, Bohndorff procured examples of this species at Manyango and Fischer at Muniuni. Sousa mentions a specimen as having been obtained in Benguela by Anchieta. In the British Museum there are now examples from Natal, Zululand, the present specimen from Chilasulo, and two from the Usambara country to the north of the Pangani River.

D. atripennis, the type of which came from Sierra Leone, is a doubtfully distinct subspecies of *D. ludwigi*. It is represented in the British Museum by one specimen from the Gambia, three from Fantee, one from Shongo on the Niger, one from Rio del Rey in Camaroons, and one (of Du Chaillu's) from Gaboon. The only characters I can find to distinguish *D. atripennis* from *D. ludwigi* are that the ends of the tail-feathers in *D. atripennis* appear to be constantly slightly wider and more rounded, and the shaft of the outer feather is somewhat straighter and not curved at the tip. On the average *D. atripennis* is slightly larger, and the metallic gloss is generally brighter, except in the specimen from Shonga and that from the Gambia (the latter being in partial moult); these have the plumage black with a bluish gloss, almost confined to the upper parts. An apparently very similar bird, obtained by Marche at Doumé, in Gaboon, is the type of *D. sharpii* Oust. N. Arch. (2) ii. p. 97 (1879).

The true *D. modestus* is confined to Prince's Island, and is replaced on the continent by a similarly coloured small form (*D. coracinus*), which ranges from Loango into Camaroons. This species is represented in the British Museum by one specimen from Landana, seven from Gaboon, and two from the Rio del Rey, in Camaroons. All the Angola and Gold-Coast specimens in the collection belong to *D. afer*, so I presume that *D. coracinus* Reichen. (J. f. O. 1897, p. 34) from Togoland should also be referred to *D. afer*—the common African Drongo, which ranges over Africa generally southward from about 17° N. latitude. The gloss on the plumage of this species is very evenly distributed over the upper parts, a character that distinguishes it from *D. modestus* and *D. coracinus*, both of which have the back velvety black. The gloss on the plumage, however, varies from bluish green to violet, being affected by the season and the atmosphere. These changes, however slight, may be held responsible for the number of different names this species has received, the most recent of which is *D. modestus atactus* Oberholser (Pr. U.S. Mus. xxii. p. 36, 1899), and the oldest is *Corvus afer* Licht. 1793, which should not be discarded on account of *Cryptorhina afra* (Linn.) having been originally placed in the genus *Corvus*.

There are three Drongos of the Ethiopian Region which are known to me by the original descriptions only; these are:—*D. sharpii*, above referred to; *Buchanga atra* var. *fuscipennis* Milne-Edw. & Oust. Ann. Sc. Nat. Zool. 1887, p. 225, from Great Comoro Island; and *Buchanga aldabrana* Ridgway, Pr. U.S. Mus. xvi. p. 597 (1893), from Aldabra Island. It is possible, if not highly probable, that these two last names refer to specimens of *Dicrurus waldeni* Schl., which is represented in the British Museum by a single specimen from the Island of Mayotte.

I should add that these remarks on the Ethiopian Drongos and the following key are based entirely on the specimens in the British Museum.

Key to the Ethiopian Forms of Dicrurus.

a. Tail more forked; depth of fork 1·25 to 2·5 inches.
  a^1. Frontal feathers much elongated and longer than the culmen .... *D. forficatus.*
  b^1. Frontal feathers not elongated.
    a^2. Entirely black, with a green gloss. Culmen 1·2, wing 5·6; tail, central feathers 5·0, outer ones 7·5; tarsus 1·0.—Mayotte I. .. *D. waldeni.*
    b^2. Quills and tail brown; remainder of plumage in adult males black glossed with greenish blue.
      a^3. Wing 5·8, tail 5·6, tarsus 0·96. — Great Comoro I. .... *D. fuscipennis.*
      b^3. Wing 5·3; tail, central feathers 4·2, outer 5·55; tarsus 0·92. The female differs in being slaty grey above and greyish white below.—Aldabra I. .... *D. aldabranus.*
b. Tail less forked; depth of fork less than one inch.
  c^1. Tail more forked; wing 4·8 to 5·5, tail 4·4 to 5·3.
    c^2. Back strongly glossed like the crown and upper tail-coverts .... *D. afer.*
    d^2. Back velvety black, contrasting strongly with the glossy green of the crown and upper tail-coverts.
      c^3. Larger: culmen 1·0, wing 5·2 to 5·5, tail 4·8 to 5·0.—Prince's I. .... *D. modestus.*
      d^3. Culmen 0·75 to 0·85, wing 4·8 to 5·3, tail 4·4 to 4·5.—Continent of Africa ...... *D. coracinus.*
  d^1. Tail square or much less forked; wing 3·8 to 4·6, tail 3·5 to 4·2.
    e^2. Ends of tail-feathers more angular; wing 3·8 to 4·1, tail 3·5 to 3·7.—South from the Congo and Tana Rivers .... *D. ludwigi.*
    f^2. Ends of tail-feathers more rounded; wing 4·0 to 4·6, tail 3·5 to 4·2.—Gambia to Gaboon. *D. atripennis.*
    g^2. Entire plumage black, slightly glossed with blue; wing 4·2, tail 4·0.—Gaboon ..... *D. sharpii.*

21. Prionops talacoma (op. cit. p. 49).
Angoniland. Native name "*Manda.*"

22. Enneoctonus collurio (op. cit. p. 53).
Lindipe.

23. Laniarius mosambicus (op. cit. p. 53).
Angoniland; Chicala. Native name "*Mwiyo.*"

24. Dryoscopus cubla (op. cit. p. 55).
Angoniland. Native name the same as that of the last species.

25. Telephonus senegalus (op. cit. p. 55).
Chilasulo. Native name "*Kapuli.*"

26. Pelicinius bertrandi (op. cit. p. 56).
Angoniland.

27. Malaconotus sulphureipectus (op. cit p. 56).
Chilasulo.

28. Malaconotus starki Scl. fil. Ibis, 1901, p. 153.
Chilasulo.

29. Crateropus kirki (op. cit. p. 58).
Lindipe. Native name "*Ligolegole.*"

30. Pycnonotus layardi (op. cit. p. 60).
Chikala. Native name "*Pumbwa.*"

31. Andropadus striifacies (op. cit. p. 64).
Angoniland.

32. Cisticola cinerascens (op. cit. p. 75).
Chikala. Native name "*Ndinoli.*"

33. Sylvia simplex (op. cit. p. 81).
Lindipe.

34. Cossypha caffra (op. cit. p. 84).
Angoniland. Native name "*Lumbisi.*" I fail to find any characters for distinguishing an East-African race (*C. caffra isolæma* Reichenow, Orn. Monatsb. 1900, p. 5) from specimens of this species from the Cape Colony.

35. Cossypha heuglini (op. cit. p. 84).
Chikala. Native name "*Lumbisi.*"

36. Pratincola torquata (op. cit. p. 86).
Angoniland. Native name "*Tambala.*"

37. Turdus libonianus (op. cit. p. 88).
Chilasulo. Native name "*Lichonja.*"

38. Monticola angolensis (op. cit. p. 89).
Angoniland. Native name "*Njole.*"

39. Bradyornis murinus (op. cit. p. 93).
Chanda.

40. Smithornis capensis (op. cit. p. 96).
Mpimbi. Native name "*Ngulengule.*"

41. Hirundo puella (op. cit. p. 102).
Angoniland. Native name "*Chimalewale.*"

42. Hapaloderma narina (op. cit. p. 108).
Chilasulo.

43. Eurystomus glaucurus (op. cit. p. 109).
Chilasulo. Native name "*Chole.*"

44. Eurystomus afer (op. cit. p. 109).
Angoniland; Chilasulo; Mpimbi. Native name "*Chole.*"

45. Coracias caudatus (op. cit. p. 109).
Lindipe.

46. Melittophagus bullockoides (op. cit. p. 111).
Chikala. Native name "*Chamgombe.*"

47. Merops apiaster (op. cit. p. 111).
Angoniland, in winter plumage. Native name "*Ehangombe.*"

48. Merops natalensis (op. cit. p. 111).
Angoniland. Native name "*Ehangombe.*"

49. Halcyon hyacinthinus Reichen.; Shelley, Ibis, 1901, p. 173.
Angoniland. Native name "*Kalalangombe.*"

50. Colius affinis (op. cit. p. 118).
Angoniland. Native name "*Pasapanga.*"

51. Turacus livingstonii (op. cit. p. 119).
Angoniland. Native name "*Ngalukula.*"

52. Gallirex chlorochlamys (op. cit. p. 120).
Chilasulo. Native name "*Ngulakula.*" These last two

names are probably the same, and are applied to all Plantain-eaters.

53. Ceuthmochares australis (op. cit. p. 122).
Lindipe.

54. Coccystes hypopinarius (op. cit. p. 123).
Chilasulo. Native name "*Mkoka.*"

55. Cuculus canorus (op. cit. p. 124).
Angoniland, two specimens, both immature. Native name "*Chamkoko.*"

56. Cuculus clamosus (op. cit. p. 124).
Angoniland; Zomba; Lindipe. Native name "*Mkoko.*"

57. Chrysococcyx klaasi (op. cit. p. 124).
Angoniland. Native name "*Tiatia.*"

58. Chrysococcyx cupreus (op. cit. p. 124).
Mpimbi. Native name "*Tiatia.*"

59. Lybius torquatus (Dumont) (op. cit. p. 126); Sharpe, Hand-l. B. ii. p. 178 (1900).
Angoniland. Native name "*Chilagodo.*"

60. Smilorhis whytii (op. cit. p. 128).
Chilasulo.

61. Dendropicus hartlaubi Malh. Rev. de Zool. 1849, p. 532.
Dendropicus zanzibari (op. cit. p. 132).
Chilasulo. Native name "*Ngongonda.*"

62. Columba arquatrix (op. cit. p. 135).
Maloza. Native name "*Kikanganjuna.*"

63. Chalcopelia afra (op. cit. p. 137).
Angoniland. Native name "*Katukutuku.*"

64. Pœocephalus fuscicapillus (op. cit. p. 139).
Chilasulo; Chizala. Native name "*Ngwe.*"

65. Glaucidium perlatum (op. cit. p. 142).
Zomba. Native name "*Karungululu.*"

66. Elanus cæruleus (op. cit. p. 147).
Zomba. Native name "*Katotola.*"

67. Lophotriorchis lucani Sharpe & Bouvier, Bull. Soc. Zool. France, 1877, p. 471.
Angoniland. Native name "*Kafumbi.*"

This small Eagle somewhat resembles *Aquila wahlbergi* in size and in having a short crest on the hinder part of the crown, but may be readily distinguished from that bird and from *Nisaëtus pennatus* by its having seven distinct dark bars across the tail and some blackish bars on the white inner lining of the wings. *Lophoaëtus occipitalis*, the commonest little Eagle in the Nyasa district, has an extremely long crest, much darker plumage, and the tail crossed by only four dark bands.

L. lucani, in the pattern of the tail and under surface of the wings, resembles the immature stage of *Nisaëtus spilogaster*, but is a very much smaller bird, with the wing not more than 15·5 inches, which is the measurement of the wing of a specimen from Delagoa Bay, while in the type from Landana it is 14·6, and in the present specimen only 13·7.

I omitted this species in my 'List of African Birds' owing to the late Mr. J. H. Gurney's remark ('List of Diurnal Birds of Prey,' 1884, p. 52, note 1) that the type of *L. lucani* seemed to him to be a young *Nisaëtus spilogaster*, apparently a male.

I may remark that this species should be entered in my List (B. Afr. i. p. 149) after *Nisaëtus*, and that before that genus should be added *Archibuteo lagopus*, of which there are two specimens in the British Museum labelled "Port Natal."

68. Asturinula monogrammica (op. cit. p. 151).
Chanda. Native name "*Katotola.*"

69. Accipiter melanoleucus (op. cit. p. 153).
Chilasulo. Native name "*Nganga.*"

70. Polyboroides typicus (op. cit. p. 153).
Chanda. Native name "*Nganga.*"

71. Coturnix delegorguii (op. cit. p. 179).
Angoniland. Native name "*Chiuti.*"

72. Francolinus shelleyi (op. cit. p. 181).
Angoniland. Native name "*Ehokongo.*"

73. Francolinus johnstoni (op. cit. p. 182).
Mlanji. Native name "*Chikwelehwese.*"

74. Stephanibyx inornatus (op. cit. p. 188).
Mpimbe. Native name "*Ngulengule.*"

75. Totanus ochropus (op. cit. p. 192).
Chilasulo.

XLII.—*On two recently discovered Additions to the Genus* Calliste. By P. L. Sclater, D.Sc., F.R.S.

(Plate XII.)

The beautiful Tanagers of the genus *Calliste* have been a frequent subject of my studies ever since I began ornithological work, and I feel much indebted to Mr. Walter Rothschild for allowing me to figure two recently described additions to this attractive group from specimens in the Tring Museum.

One of the first papers I ever wrote on birds was a "Synopsis of the Tanagrine Genus *Calliste,*" which appeared in Jardine's 'Contributions to Ornithology' for 1851. It contained descriptions of 48 species, which were divided into eight groups, not, however, considered as being even of subgeneric value, but employed solely for convenience of arrangement.

In 1854 I made another list of the species of *Calliste* in my 'Tanagrarum Catalogus Specificus,' in which I separated the "*Procnopides*" as a genus. In doing this, however, I think that I made a mistake.

In 1856, in my "Synopsis Avium Tanagrinarum," published in the Zoological Society's 'Proceedings,' I took care to reduce "*Procnopis*" to its proper level, as being merely a subdivision of *Calliste,* and made the number of species then known to be 51.

In 1873 the *Callistæ* were again catalogued by Salvin and myself in our 'Nomenclator Avium Neotropicalium,' and 56 valid species were recognised as then known to us.

Lastly, in 1886, the species of *Calliste* were re-examined and characterized in the eleventh volume of the 'Catalogue of the Birds in the British Museum.' They were then arranged in 12 sections, and 61 species were recognized as valid.

In 1891 Mr. Allen added to these a sixty-second species by describing *Calliste margaritæ* (Bull. Am. Mus. iii. p. 351) from Chapada, in Matto Grosso. I am not aware of any other species of this genus having been characterized since the publication of the British Museum Catalogue in 1886 until December of last year, when M. le Comte R. de Dalmas sent, through Dr. Bowdler Sharpe, to the British Ornithologists' Club descriptions of two new species recently discovered in the forests of Buenaventura, in the U.S. of Colombia (*Calliste emiliæ* and *C. johannæ*), which were subsequently published in the 'Bulletin' of the B. O. C. (vol. xi. pp. 35, 36). On these two species I will write a few lines to accompany the figures of them now given.

Calliste emiliæ (Plate XII. fig. 1) belongs to Section VI. (group of *C. gyrola*) of the B. M. Catalogue (xi. p. 116), and is a very close ally of *C. lavinia* of Costa Rica and Veragua, from which it differs mainly in its blue throat and more golden nape.

The types of this species were procured, according to Comte de Dalmas, in March and May, 1899, at San José and El Paillon, near Buenaventura. The specimen in the Tring Museum, from which the figure has been taken, was obtained at S. Javier, on the Rio Cachave, in N.W. Ecuador (see Hartert, Nov. Zool. v. p. 477), by Mr. G. Flemming, in July 1900. It is labelled by the collector "♂ : iris brown; bill dark brown, below whitish."

Calliste johannæ (Plate XII. fig. 2) belongs to the second section of my arrangement of the genus *Calliste* (Cat. B. B. M. xi. p. 98, group of *C. tricolor*), and is allied to *C. schranki* and *C. florida*, but differs from *C. schranki* in having the crown green instead of bright yellow, and in its bluish-black throat, and from *C. florida* in its bright yellow rump and dark throat. It is obviously a very distinct species, as will be seen from the figure.

The types of this species were obtained in May 1899 at El Paillon, near Buenaventura, in the same forest as those of *C. emiliæ*. The specimen in the Tring Museum, from which the figure has been taken, was procured by Mr. Mikelta at Paramba, a farm on the western bank of the river Mira, in N.W. Ecuador (*cf.* Hartert, Nov. Zool. v. p. 478), on August 16th, 1898. It is labelled by the collector "♂: iris dark brown; feet bluish; bill dark."

There are also two skins of this species in the British Museum, lately received from the well-known collector Mr. P. O. Simons. They were obtained, in July 1900, at Oroya and Rio Yinimbare, Peru.

XLIII.—*On a few Additions to the Birds of Lucknow**.

By William Jesse.

A district like that of Lucknow, lying in the centre of territory long in the possession of the British, with a comparatively large European sporting population, civil and military, is not likely to contain much that is novel in ornithology—the more so, as all Northern India has been worked by enthusiasts stirred by the examples of Hodgson, Jerdon, Blyth, and Hume. We can only hope to add a few fresh species to the fauna of the neighbourhood and to gather further information about those already recorded. Much has yet to be learnt regarding migration, both general and local, which may give us clues to meteorological facts of which we are at present ignorant. There is no doubt whatever that mammals and birds—the latter especially—are able in some way to forecast the weather; and, if their yearly wanderings were more accurately observed, it is possible that conclusions drawn therefrom would not prove altogether valueless to the Meteorological Department. Be this as it may, there is much to interest a lover of birds even in such a well-worked spot as the capital of Oudh. That the results of my recent labours are so poor is due to two facts. In the first place, owing to a severe touch of sunstroke, I have been compelled to restrict my wanderings more or less to the early mornings and the evenings; and, in the second place, beyond a bicycle, I have nothing save my feet as a means of locomotion. To do good work upon the larger birds of prey it is necessary to have a horse and to ride over wide tracts of country, scanning the most likely trees and marking any nests that may be seen. I have been singularly unlucky with such species. Thus I have only once got an egg of the Indian Tawny Eagle (*Aquila vindhiana*)—and that was rotten,—though I must have found ten or a dozen nests empty or with young. Curiously, just beneath the egg, in the underside of this nest, a family of Chirukas (*Uroloncha malabarica*) had taken up their abode. Similarly, I have not yet succeeded in obtaining an egg of the Black Vulture (*Otogyps calvus*), though I have visited several breeding-places at different times.

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* For previous notes see Ibis, 1896, p. 185; 1897, p. 554; and 1899, p. 344.

The long distances to be covered before reaching the bigger jheels have prevented me from thoroughly searching the neighbourhood for water-birds, but I hope in time to be able to shew that numbers of species nest with us of which the eggs have not yet been taken in this district.

The little that I have done is mainly due to the valuable help which I have received from innumerable pupils in La Martinière College and to their unceasing energy. Whether it be in his knowledge of the habits of the feathered tribes, born of years of patient watching, or in the skill with which he will track down a bird to its nest, the average Anglo-Indian boy is far in advance of his English cousin. For him no cheap book is obtainable filled with accurate information, and he has to rely upon his own powers of observation, with occasional assistance from some friendly ornithologist. Needless to say, what he does know he knows thoroughly, and, if his nomenclature be not that used by Jerdon or that found in the volumes of the 'Fauna of British India,' he is little the worse for that.

Furthermore, the highest tree, the thinnest branch, has no terrors for the Martinière lad. The practice of generations has made his race almost arboreal, and where he shrinks to go I would advise no one to make the attempt.

The natives of Oudh, on the other hand, are practically useless as finders of nests. When Vultures, Herons, Egrets, or the like breed in colonies near their villages, they will sometimes inform you of the fact, and occasionally a small urchin, who is looking after the cows, will point out to you a clutch of Plover's eggs, but that is all. I was fortunate enough to find an excellent climber in my chowkidar, but it is not often that a villager will risk his life or limbs over a difficult nest.

In my notes I have left out all reference to the Great Indian Stone-Plover (*Esacus recurvirostris*), the Indian Spurwing (*Hoplopterus ventralis*), and the Small Indian Swallow-Plover (*Glareola lactea*). These birds were already known to have occurred within the limits of the Division, though they had not actually been seen near the city. However, I have myself shot examples of the first two species on the banks of the Goomti close to La Martinière, and have seen the third bird in the same locality.

On the other hand, I have given short notes on the Sociable Lapwing (*Chettusia gregaria*) and the Black Partridge (*Francolinus vulgaris*), because, although on the "list," they had evidently been included with a certain amount of doubt.

Before concluding, I cannot but refer to the loss that Indian ornithology has sustained though the death of Mr. George Reid, who passed away at Lucknow early in the present year. Though I never had the good fortune to make his acquaintance personally, we corresponded regularly, and, up to the last, he took a keen interest in everything connected with his hobby. His list of the Lucknow birds is extremely complete, particularly when it is remembered that he had to compile it at odd moments and practically unaided. The Lucknow Civil Division is now far larger than it used to be. The number of Commissionerships in Oudh has been reduced to two—Fyzabad and Lucknow. The size of the new Division and the limitations imposed by my scholastic work have quite prevented me from treating of nearly the whole area. As it is, the district worked by Reid is more than I can manage, and, for the present, all my notes are restricted to those parts of Oudh the avifauna of which he described years ago in 'Stray Feathers.'

FRANKLINIA GRACILIS (Oates). Franklin's Wren-Warbler.

I came across this pretty little bird this year for the first time. Its discovery is really due to Mr. Benjamin Aitken, for we were searching for nests in some babool-jungle on May 7th, when he called my attention to the peculiar note of a small Warbler, and advised me to shoot the bird to make sure of the species. As the pair we observed were very restless, flitting rapidly from tree to tree, it was some time before I could secure one of them, which was somewhat damaged by the shot. I found it to be a typical specimen of *F. gracilis*. It was impossible to determine the sex, so evidently the birds were not preparing to breed. Possibly this small species is commoner than it appears to be, and is overlooked. It cannot, however, be very numerous, as neither I nor the late Mr. George Reid had previously met with it.

SYLVIA JERDONI (Blyth). Eastern Orphean Warbler.

I obtained a specimen of this species (probably a male) during the winter of 1897. It was feeding on the insects in a babool-tree at the time. Unluckily it was very badly damaged by the shot, and I could only determine the sex approximately by the coloration. Reid does not mention the bird, and I have never seen nor heard of it since. It cannot therefore, I think, be common.

STURNUS PURPURASCENS (Gould). Gould's Starling.

In a letter, dated August 9th, 1900, Reid wrote to me:—"You should note the occurrence of *Sturnus purpurascens* at Lucknow: Sharpe, of the British Museum, found a specimen among some 'Starlings' that I sent him years ago. These are all, I think, included in the Catalogue of the Birds in the British Museum."

MOTACILLA CITREOLOIDES (Sharpe). Hodgson's Yellow Wagtail.

I shot a single male specimen with very pronounced black patches on the back and neck on Jan. 1, 1898. It was feeding by the edge of the Goomti in company with several examples of *M. borealis.*

MELANOCORYPHA BIMACULATA (Blanf.). Eastern Calandra Lark.

A boy friend, J. Green, brought me one of these Larks which he had purchased from a bird-catcher. The man said that he had caught it on one of the wide open maidâns, or plains, close to Lucknow. The bird became very tame and used to sing extremely well. Eventually it was killed and eaten by a snake, which got into its cage during the night.

DICÆUM ERYTHRORHYNCHUM (Hume). Tickell's Flowerpecker.

This bird has been entirely overlooked in Lucknow, and its discovery is due to the Martinière boys. For years I had been told of the "White Honey-sucker," a bird which they said made a nest very much like that of the Purple Sunbird, but which laid *white* eggs. For a long time I did not believe them, but on March 13, 1900, two boys, J. Green and L. Jackson, told me that they had found a nest with one egg. I went with them and saw it, a tiny grass ball lined with hair, with a hole in the side, suspended beneath some mango-leaves. Though I waited for some time, I had at length to go without seeing the bird, but I have no doubt as to the authenticity of the specimens, which I took. On March 10 of this year, Green showed me another nest just ready for eggs in a bêl-tree, about 5 feet from the ground. It was most cleverly hidden. Unluckily, the two birds, which were watching us, deserted it, and all I got was the empty fabric. As I write I have been disturbed by a little bird fluttering about the verandah, and through my glasses I can see distinctly that it is a specimen of *Dicæum erythrorhynchum.* The nest is *most* difficult to find, and would more often escape notice but for the characteristic shrill note of the owner, which is easily recognised. The late Major Cock, apparently, found the bird and eggs at

Sitapur, a cantonment situated about 60 miles from this station and almost due north of it.

Coracias garrulus (Linn.). European Roller.

I did not know before that the European Roller came much east of the Punjab, and was consequently very much surprised, when out shooting about the 25th of October, 1899, to see one of these birds flying about a snipe-jheel. It was so tame that I was able to wait till I could make sure of not injuring it, and then I knocked it over with a lightly-charged cartridge. The bird was a male, and I did not see any mate. The jheel was right out in the open, in the centre of an "usar" plain, surrounded on all sides by high grass. The bird kept making darts into the air after insects, and returning to perch on the dry clods amongst the rushes.

[Since writing this, Lt.-Col. H. B. Thornhill, I.S.C., tells me that he has come across the species in Bareilly; and in a letter the late Mr. George Reid has stated that on one or two occasions he fancied that he *saw* the European Roller, though he never succeeded in actually obtaining a specimen.]

Hieraëtus pennatus (Blyth). The Booted Eagle.

This bird is not included by Reid in his list of birds of the Lucknow Civil Division, although it is true that he remarks that it is "almost certain to be found." In the latest catalogue (1890) of the Lucknow Provincial Museum there are three specimens entered as obtained in Lucknow, viz.: ad. sex ?, ad. ♂, jr. ♂. I have come across this handsome little Eagle on two or three occasions in the large park of La Martinière College. The first example was a female, which I shot. I was attracted to it by the cries of a party of *Argya malcolmi*, which were flying all round, evidently in a perfect fever of excitement. This was on Dec. 17, 1897. Several times after this I saw another bird, which I concluded was the mate of the former. My second specimen was also obtained in the Martinière park, while sitting in a sheshum-tree, in the middle of March, 1899. On examining the label I find that I did not determine the sex, but, judging from its small size, I fancy that it is a male. The feet, legs, and cere in this bird were lemon-yellow ; in the female I noted the bill as yellowish grey at the base and bluish black at the tip. Since that time I have on two or three occasions come across birds which I believe to have been examples of this Eagle, but was unable to secure them.

MILVUS MELANOTIS (Temm. & Schleg.). Large Indian Kite.

There is no mention by Reid of this Kite occurring in Lucknow, but there is a skin in the Museum from the adjoining district of Hardoi. I shot a female, which was sitting on a low dhák-tree by a jheel, on Jan. 18, 1900. When I caught sight of it, I mistook it for an Eagle, and as it rose knocked it over, without, however, paying much attention to it. When I came to examine the skin I saw at once what it was. Had not my man determined the sex, I should have said that 25 inches was small for a female of this species. The tail-feathers, however, were very much frayed and broken. The shafts of the breast- and head-feathers were very dark brown edged with white. The bird itself was a very dark specimen, all the rufous tints being conspicuous by their absence. The white wing-patches were fairly well marked, but were buffy rather than pure white.

To make certain that my identification was correct, I sent the skin to the Calcutta Museum, where my conclusions were confirmed.

BUTEO FEROX (Jerdon). Long-legged Buzzard.

The late Mr. George Reid did not include this species in his list, but evidently came across it after publication, as I find an unnamed skin of it with his label attached [" ♂, Lucknow Dist., 12.11.88"]. A second skin—also unnamed, but with the Museum (native) collector's label on it [" ♀, Lucknow Dist., 30.12.1888"]—is in the collection of the Provincial Museum. I myself have shot two specimens—one in the cold weather of 1899, the other, a female, on the 7th of Nov., 1900. The skin of the first has, unfortunately, been mislaid, but the second—which I sent to Calcutta to have my identification confirmed—is a very fine example. The upper plumage is dark brown, the edges of the feathers, particularly the scapulars, being a rich rufous. The head is much lighter, the feathers, though dark-shafted, being much paler—often white—on the edges, and the white basal feathers shewing through. The chin, throat, and breast are white, with a few dark shaft-stripes; the abdomen and thighs are a rich dark brown, tinged with rufous, and with several large white drops irregularly distributed.

According to the label, the feet and legs were lemon-yellow, and the claws and bill lead-black. I shot both birds near the same place, a babool-jungle, in the middle of an open plain. I fancy that I have seen other specimens on several occasions, but I have never had a chance of getting them. In the Museum there is a *very* dark, almost melanistic, specimen (♀), shot by the native collector at Pithanogarh (Kumaun).

Francolinus vulgaris (Steph.). Black Partridge.

Reid, though he admitted this bird into his "list," only did so on hearsay. His belief that it existed within the borders of the division has been proved correct by Mr. T. Peacock, of this station, who very kindly brought me the fresh skin of a Black Partridge, which his brother had killed in the patowal grass fringing the railway-line about two miles from La Martinière College. It must, however, have been a straggler. The nearest locality for it that I *know* of is the "manjar" of the R. Gogra at Fyzabad.

Rallus aquaticus (Linn.). European Water-Rail.

One day at the beginning of December 1899, Mr. De Cruz, of Lucknow, very kindly sent me an unknown bird that he had shot. Seeing that it was a Water-Rail, I had it skinned immediately, when it proved to be a female. On examination I noticed that it lacked the eye-band of *R. indicus*, so I sent it to Mr. Finn, of Calcutta, who kindly examined it for me, and confirmed my surmise that it belonged to this species. Except this specimen, I can find no record of either this species or of *R. indicus* occurring in Lucknow, though I fancy the latter has been overlooked and will be found eventually.

Chettusia gregaria (Bonap.). Sociable Lapwing.

Reid states that he never came across this bird, while, on the other hand, Captain Irby mentions it as "exceedingly common on open sandy plains in January, February, and March." Common it certainly is not, but on three or four occasions I met with flocks of this Lapwing in the month of December in 1898 and 1899. The birds appear to me to be exceedingly tame; I have always been able to walk up to within fifteen or twenty yards of them. They are generally to be found in flocks of from ten to thirty individuals feeding on ploughed land, the members keeping well apart.

Larus cachinnans (Pallas). Yellow-legged Herring-Gull.

This Gull, which is, to my untutored mind, identical with my old friend of the Cornish cliffs, seems fairly common on the Gogra, Ganges, and Ramganga Rivers, on all of which I have seen it. It is not, however, plentiful on our "jheels." Reid stated in his "list" that he had seen, but not secured, a large Gull which must have been of this species. The only specimen actually obtained within the limits of the old Lucknow Division was brought to me by a bird-catcher, who said that he got it on one of the big jheels in the direction of Sitapur. Major Pollock, I.S.C., also tells me that he has frequently seen this bird on certain large shallow lakes in the Division.

Pelecanus onocrotalus (Linn.). European White Pelican.

Reid stated that, although he had not included it in his list, he was "pretty certain that *P. onocrotalus* also occurred here." It is now fairly evident that he was quite right, for I have received four skins of Pelicans from Mr. Marlboro Crosse, of the Educational Department, who very kindly shot the birds for me when out in camp in the district. Three of these turn out to belong to the Eastern variety (*P. roseus*), but the fourth is a much larger bird, with a bill quite two inches longer and rather narrower in proportion. Unfortunately we have not a large series in the local museum, but I do not think that there is any doubt that the above-mentioned bird is *P. onocrotalus*, or, at any rate, what does duty for that species in India.

Butorides javanica (Blyth). Little Green Heron.

This bird, though not included in Reid's list, seems to be not uncommon on the banks of the Goomti. It is always, so far as I have observed, solitary. I fancy that, like other Bitterns, it is more or less nocturnal, for though I have seen it perched on a stone during the middle of the day, it is certainly more often met with as the sun is declining.

Ardetta sinensis (Blyth). Yellow Bittern.

I have never actually met with this bird myself, but in March 1899, Mr. B. G. Smithe, when out shooting, obtained a fine specimen (♂ ?) in a jheel near Lucknow, which he most kindly sent to me; it is now in the Museum. I can find no previous record of its having been obtained in these parts.

Nyroca marila (Linn.). Scaup.

I have never observed this rare Duck myself, but Major Thompson, R.A.M.C., told me that he had shot one on a jheel near Lucknow at the end of 1898. Unfortunately, not knowing that anyone wanted the skin, he did not preserve it, but he said that he knew the Duck well in Europe, and to make sure he had examined the bird carefully and compared it with descriptions. I think, therefore, under the circumstances, that this occurrence can be taken as authenticated.

Marmaronetta angustirostris (Reichenb.). Marbled Teal.

Lieut. Gaine, R.A.M.C., gave me the skin of a Marbled Teal, which he and Captain Faichnie, of the same corps, had obtained near Lucknow. Unfortunately the bird had been skinned down the back by a "kitmutghar" and cured with ashes, and was therefore not worth very much as a specimen. However, the taxidermist made the best that he could of its remains. Its sex was not ascertained, but I fancy that it was a female. I think that the species has only been twice previously recorded from these parts.

XLIV.—*On the Birds collected during an Expedition through Somaliland and Southern Abyssinia to Lake Zwai.* By W. R. Ogilvie-Grant and R. J. Reid. *With Field-notes by the Collector,* Mr. Alfred E. Pease.

(Plate XIII.)

On the 8th of November, 1900, Mr. Alfred E. Pease, accompanied by his wife and their son, Mr. Edward Pease, landed at Zaila, on a sporting and ornithological expedition. Their intention was to travel in a south-westerly direction, and, passing through Jimma and Kaffa, to strike the Sobat River, follow it to its junction with the Bhar-el-Abiad or White Nile, and return home by Cairo.

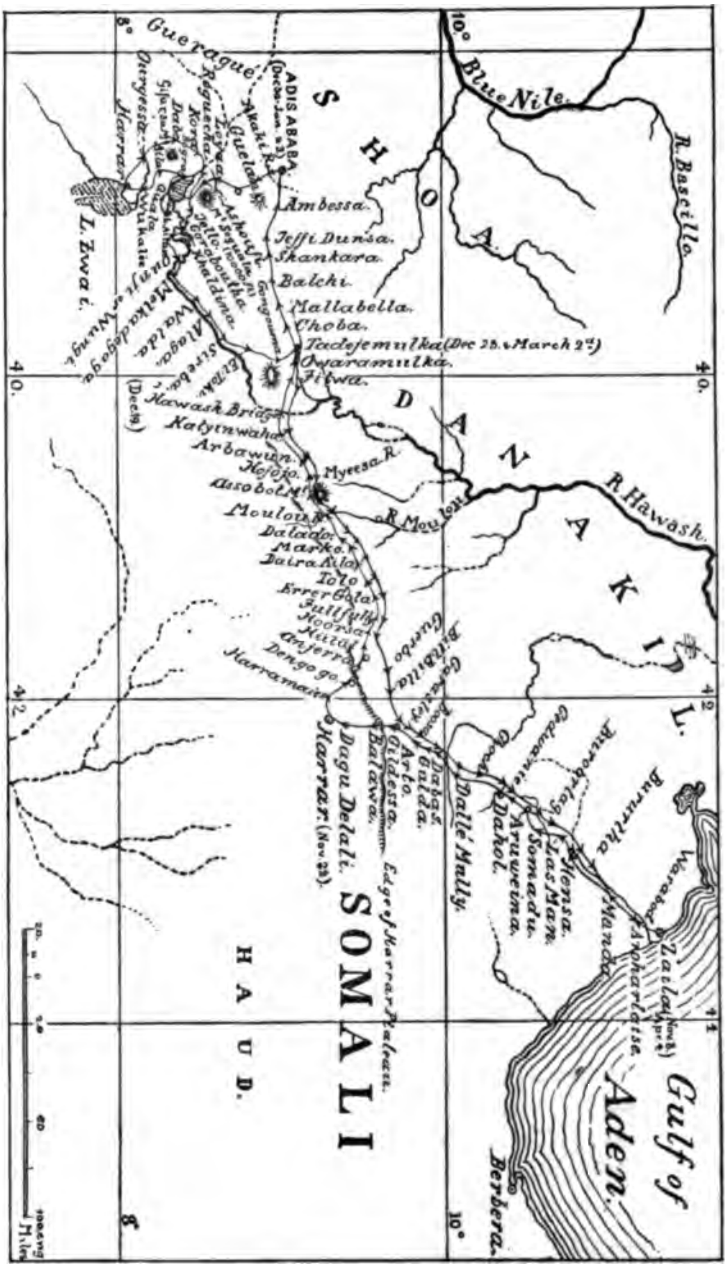
Owing to the illness of his son, Mr. Pease, to his regret, was obliged to abandon his expedition. After having reached the north end of Lake Zwai and entered the Gueragué district, he returned to the Hawash Valley, and followed the river down to the Danakil country, and so made his way back to the coast. He was accompanied by Mr. L. C. Harwood, an experienced collector and taxidermist, who, on many previous occasions, had accompanied expeditions to various parts of East Africa and done excellent work. With his assistance a large collection of birds was formed, including nearly 800 skins of 305 species, which are dealt with in the present paper. In spite of the difficulties under which they were often prepared, owing to the expedition being constantly on the march, all the specimens are in excellent condition, which speaks well for Mr. Harwood's ability.

The first part of the route followed, from Zaila to Gildessa, was much the same as that taken by Mr. J. J. Harrison (*cf.* 'Ibis,' 1901, pp. 278–299, pl. vii.). From thence the expedition marched immediately southward to Harrar, and, after remaining a few days there, descended the Harrar escarpment and proceeded by the desert route to Adis Ababa. The road taken after reaching the Hawash Bridge was over the ground followed by Mr. Weld-Blundell and Lord Lovat (*cf.* 'Ibis,' 1900, pp. 115-178 & pp. 304–337, pls. ii.–vi.). From Adis Ababa the travellers marched south by Mount Sequala, crossing the Hawash River to the north end of Lake Zwai, and, after a short stay in the Gueragué country, returned by the Hawash Valley to Tadejemulka (following much the same line as that taken by Mr. Harrison on his way south to Lake Zwai), whence they retraced their steps to the coast.

It is greatly to be regretted that Mr. Pease was unable to carry out his original intention of travelling through the Jimma and Kaffa countries to the Sobat; no doubt had he been able to do so the number of novelties in his collection would have been considerably increased. Though the large series of birds brought home contains examples of many very interesting and rare species, only three prove to be new, a fact which clearly shews that our knowledge of the birds of Somaliland and Southern Abyssinia is now fairly complete. The novelties are a species of Grass-Warbler (*Cisticola lavendulæ*), obtained near the Somali coast, and perhaps most nearly related to *C. hæsitata* from Sokotra, though differing in important particulars; a Honey-Guide (*Prodotiscus peasii*), from South Abyssinia, most nearly allied to the South-African *P. regulus*; and a Hoopoe (*Upupa intermedia*) akin to *U. somalensis*, but with the secondary quills barred, as in *U. indica*. A Bush-Babbler (*Argya sharpii*) obtained by Dr. Donaldson-Smith at Shebeli, and identified as *A. rubiginosa* (Rüpp.), is described as new, specimens of the true *A. rubiginosa* being included in the present collection.

The greater part of the specimens were shot by Mr. Pease himself, and, whatever his knowledge of African birds may have been at starting, he has rapidly developed into a keen

Fig. 82.



MAP TO SHOW ROUTE FOLLOWED BY MR. A. E. PEASE.

ornithologist, and we trust that the success of his present trip may encourage him to pursue our favourite study with even greater zest in the near future.

1. HETEROCORAX CAPENSIS.

Heterocorax capensis Licht.; Grant, Ibis, 1900, p. 120.

a. ♀. Loyaa, S. Abyssinia, 25th Jan. No. 395.

Iris dark brown; bill and legs black.

[The African Rook was the most noisy of the Corvidæ and widely distributed over altitudes of from 5,000 to 10,000 feet.—A. E. P.]

2. CORVUS SCAPULATUS.

Corvus scapulatus Daud.; Sharpe, Cat. B. Brit. Mus. iii. p. 22 (1877); Grant, Ibis, 1901, p. 283.

a. ♂. Akaki River, S. Abyssinia, 24th Jan. No. 385.

Iris brown; bill and legs black.

[The White-bellied Crow was common on the high plateau. —A. E. P.]

3. RHINOCORAX AFFINIS.

Rhinocorax affinis (Rüpp.); Sharpe, Cat. B. Brit. Mus. iii. p. 46 (1877); Lort Phillips, Ibis, 1898, p. 394; Grant, Ibis, 1901, p. 283.

a. ♂. Hawash Bridge, S. Abyssinia, 19th Dec. No. 257.

Iris brown; bill and legs black.

[The Short-tailed Raven is the most widely distributed of all the Crow-kind. It ranges from the lower Hawash to 9,000 feet.—A. E. P.]

4. PHOLIDAUGES LEUCOGASTER.

Pholidauges leucogaster (Gm.); Grant, Ibis, 1900, p. 121; 1901, p. 283.

a. ♂. Somadu, Somaliland, 1st April. No. 751.

Iris brown; bill and legs black.

[The White-bellied Glossy Starling was not seen till our return journey in April, and then only this single specimen was observed. Somadu is the present British frontier police post.—A. E. P.]

5. LAMPROTORNIS PORPHYROPTERUS.

Lamprotornis porphyropterus Rüpp.; Grant, Ibis, 1900, p. 121; 1901, p. 283.

a. ♀. Errer Gōta, S. Abyssinia, 6th Dec. No. 196.

b. ♂. Kassam River, S. Abyssinia, 22nd Dec. No. 287.

c, d. ♂. Hoorsa, S. Abyssinia, 22nd Mar. Nos. 726, 727.

Iris pale yellow; bill and legs black.

[Specimen *b* was shot on the Abyssinian plateau; *a*, *c*, and *d* below the Harrar plateau escarpment. The Purple-winged Glossy Starling frequents the thickest bush.—A. E. P.]

6. LAMPROCOLIUS CHALYBEUS.

Lamprocolius chalybeus Ehr.; Grant, Ibis, 1900, p. 122; 1901, p. 284.

a, b. ♂ ♀. Harrar, S. Abyssinia, 24th Nov. Nos. 103, 104.

c. ♀. Adis Ababa, S. Abyssinia, 13th Jan. No. 372.

d–f. ♂ ♀. Myeesa River, S. Abyssinia, 14th March. Nos. 674–676.

Iris yellow; bill and legs black.

[This is the Common Glossy Starling of the high grounds of Abyssinia; it is also found in the low country of Galla, Danakil, and Somali where there are larger trees. *d–f* were low-ground specimens.—A. E. P.]

7. HETEROPSAR ALBICAPILLUS.

Heteropsar albicapillus (Blyth); Sharpe, Cat. B. Brit. Mus. xiii. p. 187 (1890).

a. ♀. Hensa, Somaliland, 2nd April. No. 759.

b. ♂. Manda, Somaliland, 3rd April. No. 761.

Iris pale yellow; bill and legs black.

[The White-headed Starling was seen by me only in Somaliland, half a dozen or many more being generally found together. The country where these examples were shot was open grass prairie with scattered trees, in which the birds were found. Mr. Harwood observed one flock in Abyssinia in very large heavy-foliaged high trees.—A. E. P.]

8. SPREO SUPERBUS.

Spreo superbus (Rüpp.); Grant, Ibis, 1901, p. 284.

a. ♀. Hoorsa, S. Abyssinia, 4th Dec. No. 172.

b. ♂. Fullfully, S. Abyssinia, 21st Mar. No. 712.

Iris pale yellow; bill and legs black.

[The Spreo Starling is the commonest bird in the low countries; it was never seen on the high plateaux, but was observed near Lake Zwai and all down the Hawash Valley. It is a very fearless bird and frequented our camps.—A. E. P.]

9. COSMOPSARUS REGIUS.

Cosmopsarus regius Reichenow; Grant, Ibis, 1901, p. 284.

a. ♀. Dahol, Somaliland, 16th Nov. No. 62.

b, c, d. ♂ et imm. Arto, Somaliland, 18th Nov. Nos. 66–68.

e, f. ♀. Errer Gōta, S. Abyssinia, 6th Dec. Nos. 195 & 197.

Iris pale yellow; bill and legs black.

[The Golden-breasted Glossy Starling, a magnificent species, though common in certain localities, is not ubiquitous; it is found chiefly in the hot and barren countries and in scrub. It flies in flocks and is not easy to approach, going from tree to tree and alighting on the ground in close "bunches."—A. E. P.]

10. BUPHAGA ERYTHRORHYNCHA.

Buphaga erythrorhyncha (Stanl.); Sharpe, P. Z. S. 1895, p. 461; Lort Phillips, Ibis, 1898, p. 396; Hawker, Ibis, 1899, p. 59; Grant, Ibis, 1901, p. 284.

a. ♀. Lake Harramaier, S. Abyssinia, 28th Nov. No. 131.

b. ♂. Adis Ababa, S. Abyssinia, 5th Jan. No. 353.

c. ♂. Goraboutha, S. Abyssinia, 17th Feb. No. 528.

Iris bright orange or bright yellow, eyelids yellow; bill red; legs and feet black.

[The Red-billed Ox-pecker or Camel bird we found alike on high and low ground in flocks of from seven to twenty, wherever cattle or camels were numerous.—A. E. P.]

11. BUCHANGA ASSIMILIS.

Buchanga assimilis (Bechst.); Grant, Ibis, 1900, p. 122; 1901, p. 284.

a. ♂. Somadu, Somaliland, 13th Nov. No. 30.
b. ? imm. Arto, Somaliland, 18th Nov. No. 65.
c. ♀. Hülül, S. Abyssinia, 1st Dec. No. 150.
d. ♂. Arbawun, S. Abyssinia, 10th Mar. No. 660.

Iris red; bill and legs black.

[The African Drongo was not seen by us on the highest table-land. Very pugnacious by nature, it attacks Kites and Crows. It has a grating harsh note.—A. E. P.]

12. ORIOLUS LARVATUS.

Oriolus larvatus Licht.; Sharpe, P. Z. S. 1895, p. 462.

a. ♂. Sequala, S. Abyssinia, 27th Jan. No. 409.
b. ♂. Bogra, S. Abyssinia, 1st Feb. No. 434.
c, d. ♂ ♀. Jello, S. Abyssinia, 16th Feb. Nos. 515, 516.

Iris red; bill red-brown or pinkish brown; legs dark slate.

Though *O. meneliki* was very carefully looked for, no specimens were met with, nor was the red-billed *O. monachus* procured.

[We did not see this Oriole except in the forests of the Hawash Valley.—A. E. P.]

13. VIDUA PRINCIPALIS.

Vidua principalis (Linn.); Grant, Ibis, 1900, p. 123.

a. ♂. Errer Gōta, S. Abyssinia, 9th Dec. No. 215.
b. ? Marko, S. Abyssinia, 11th Dec. No. 223.

Iris brown; bill red; legs black.

[The Pin-tailed Whydah is generally found near water in thick bush and among high trees.—A. E. P.]

14. VIDUA HYPOCHERINA.

Vidua hypocherina J. & E. Verr.; Sharpe, Cat. B. Brit. Mus. xiii. p. 208 (1890); Hawker, Ibis, 1899, p. 60.

a. ♀. Marko, S. Abyssinia, 10th Dec. No. 221.

Iris, bill, and legs dark brown.

The female of the Steel-blue Whydah has already been procured and described by Mr. Hawker.

15. LINURA FISCHERI.

Linura fischeri Reichenow; Grant, Ibis, 1900, p. 123.

a, b. ♂. Errer Gōta, S. Abyssinia, 9th Dec. Nos. 213, 214.

Iris brown; bill and legs orange-red.

The examples procured were two fully adult males.

[We found Fischer's Weaver-Finch in the high trees bordering the marshes of the Errer Gōta River and never in any other locality.—A. E. P.]

16. PENTHETRIA EQUES.

Penthetria eques (Hartl.); Sharpe, Cat. B. Brit. Mus. xiii. p. 220 (1890); Grant, Ibis, 1901, p. 285.

a. ♂. Harrar, S. Abyssinia, 25th Nov. No. 114.

b. ♂ imm. Roguecha, S. Abyssinia, 15th Feb. No. 509.

Iris, bill, and legs brown.

The adult and immature males are in brown plumage, the former having the shoulder-patch of an unusually dark chestnut. The adult shows no sign of assuming the black breeding-dress, and is similar in plumage to a male collected somewhat further south by Mr. J. J. Harrison at Walamo, 6,700 feet, on 24th Feb. (Ibis, 1901, p. 285).

Males obtained by Lord Delamere in the Kenya District were in full breeding-dress by the beginning of February. It is evident, therefore, that the nesting-season of this species is later in the more northern parts of its range.

[This Chestnut-shouldered Weaver-Finch was only obtained in its immature and winter plumage. We never observed one in the black breeding-plumage.—A. E. P.]

17. UROBRACHYA TRAVERSI.

Urobrachya traversii Salvad.; Grant, Ibis, 1900, p. 124.

a. ♂. Lake Zwai, S. Abyssinia, 5th Feb. No. 451.

Iris dark brown; bill dark brown; legs brown.

A male in brown plumage, with the orange shoulder well developed.

[Traversi's Weaver-Finch was seen in large flocks amongst the grass and sedges on the edge of the lake. In February only a few had the orange shoulder-patch, which was conspicuous when they flew.—A. E. P.]

18. PYROMELANA FRANCISCANA.

Pyromelana franciscana (Isert); Grant, Ibis, 1900, p. 125.

a. ♀. Goraboutha, S. Abyssinia, 17th Feb. No. 529.

b–g. ♂ ♀. Tadejemulka, S. Abyssinia, 4th Mar. Nos. 608–611, 616, 617.

h. ♂. Filwa, S. Abyssinia, 8th Mar. No. 650.

♂. Iris brown; bill black; legs brown.

♀. Iris, bill, and legs brown.

The males before us, shot on 4th March, are in very varied stages of plumage. One is in almost perfect breeding-dress; a second has assumed half the breeding-garb; while a third is in a much less advanced condition.

The female may be at once distinguished from that of *P. taha*—which it closely resembles, and with flocks of which it often associates—by the lack of the dark band above the ear-coverts.

[In February the Orange Weaver-Finches were all in the dark plumage—*e. g.* No. 529. In March they had already changed their dress, and some had nearly assumed their striking breeding-plumage.—A. E. P.]

19. PYROMELANA TAHA.

Pyromelana taha (Smith); Sharpe, Cat. B. Brit. Mus. xiii. p. 242 (1890).

a, b. ♂. Ounji, S. Abyssinia, 19th Feb. Nos. 538, 542.

Iris brown; bill and legs dark brown.

Two specimens in brown plumage agree with examples of *P. taha* from South Africa rather than with the smaller form, *P. ladoensis*, their wing-measurements being respectively 2·5 and 2·6 inches.

[The same note applies to the Taha Weaver-Finch as to *P. franciscana*.—A. E. P.]

20. PYROMELANA XANTHOMELANA.

Pyromelana xanthomelana (Rüpp.); Grant, Ibis, 1900, p. 125; 1901, p. 284.

a, b. ♂. Adis Ababa, S. Abyssinia, 31st Dec. & 12th Jan. Nos. 344, 370.

Iris, bill, and legs brown.

Both birds are in the adult winter dress, and as yet show no trace of the black breeding-plumage.

[The Yellow-shouldered Weaver-Finch was found on the hills behind the British Residency.—A. E. P.]

21. PLOCEIPASSER MELANORHYNCHUS.

Ploceipasser melanorhynchus (Rüpp.); Grant, Ibis, 1900, p. 125.

a. ♀. Errer Gōta, S. Abyssinia, 6th Nov. No. 201.
b. ♂. Marko, S. Abyssinia, 10th Dec. No. 219.
c. ♀. Daira Aila, S. Abyssinia, 18th Mar. No. 698.

Iris brown; bill black; legs brown.

[These Black-billed Weaver-Finches are bold, noisy, chattering birds, and appear to breed in the autumn and in the spring, for at both these seasons they were observed haunting their nests, which are untidy bunches of fine grass or teff attached to the ends of the lower branches of trees. —A. E. P.]

22. QUELEA ÆTHIOPICA.

Quelea æthiopica (Gray); Grant, Ibis, 1900, p. 126.

a. ♀. Fullfully, S. Abyssinia, 21st Mar. No. 713.

Iris brown; bill deep red; legs brown.

[The Ethiopian Red-billed Weaver-Finch was found near the wells and pools.—A. E. P.]

23. SPERMESTES SCUTATA.

Spermestes scutata (Heugl.); Grant, Ibis, 1900, p. 126.

a–c. ♀ imm. Roguecha, S. Abyssinia, 14th Feb. Nos. 496–498.

Iris brown; bill and legs dark slate-coloured.

[This bird was seen flying fast in closely-packed flocks and was not observed settling; all the three young birds were shot out of one flight.—A. E. P.]

24. ORTYGOSPIZA POLYZONA.

Ortygospiza polyzona (Temm.); Grant, Ibis, 1900, p. 126.

a. ♂ imm. Guelan, S. Abyssinia, 25th Jan. No. 390.

Iris brown; upper mandible black, lower dark red; legs dusky brown.

This specimen is in the exact plumage of the adult female. Possibly a mistake as to the sex may have been made.

[The Many-barred Weaver-Finch is generally found near water on open rolling grass table-lands; it makes a curious clicking noise, which is very difficult to locate; it towers high in the air, and whilst in flight clicks continually; it falls rapidly to the earth, like a stone.—A. E. P.]

25. LAGONOSTICTA BRUNNEICEPS.

Lagonosticta brunneiceps Sharpe, Cat. B. Brit. Mus. xiii. p. 277 (1890); Grant, Ibis, 1901, p. 285.

a, b. ♂ imm. et ♀. Dagu Delali, S. Abyssinia, 21st Nov. Nos. 88, 89.

c. ♂. Marko, S. Abyssinia, 11th Dec. No. 225.

d, e. ♂ ♀. Dalado, S. Abyssinia, 12th Dec. Nos. 228, 229.

f. ♂. Katyinwaha, S. Abyssinia, 13th Dec. No. 249.

g. ♂. Owaramulka, S. Abyssinia, 7th Mar. No. 635.

Iris red or brown; bill red, ridge black; legs brown.

[The Brown-capped Fire-Finch is numerous in small flocks. —A. E. P.]

26. AMADINA FASCIATA.

Amadina fasciata (Gmel.); Sharpe, P. Z. S. 1895, p. 466.

a. ♂. Dalado, S. Abyssinia, 16th Mar. No. 691.

Iris brown; bill slate-coloured; legs light brown.

[The Ribbon or Cut-throat Finch flies in dense packs and alights in close order on the tops of bushes and trees. It was seen only below the escarpment.—A. E. P.]

27. PYTELIA AFFINIS.

Zonogastris melba affinis Elliot, Field Columb. Mus. Orn. i. no. 2, p. 34 (1897)

? *Pytelia citerior* Grant, Ibis, 1900, p. 128 [quite a young bird].

a, b. ♂ ♀. Aruweina, Somaliland, 14th Nov. Nos. 46, 47.

A very young female obtained by Lord Lovat on the Blue

Nile and referred to *P. citerior* probably belongs to the present species.

[This Red-faced Finch was seen only in Somaliland.—A. E. P.]

28. Coccopygia quartinia.

Coccopygia quartinia (Bonap.); Grant, Ibis, 1900, p. 129.

a, b. ♀. Adis Ababa, S. Abyssinia, 3rd Jan. Nos. 349, 350.

Iris red; upper mandible black, lower mandible red; legs black.

[The Yellow-bellied Amaduvade was not met with except near the hill-side at Adis Ababa.—A. E. P.]

29. Hypochera ultramarina.

Hypochæra ultramarina (Gmel.); Grant, Ibis, 1900, p. 129.

a. ♂. Adis Ababa, S. Abyssinia, 15th Jan. No. 374.

Iris brown; bill pinkish white; legs orange-red.

[The Ultramarine Finch was shot in the compound; it was a solitary specimen that frequented the Residency garden. I observed one near the king's palace in Adis Ababa, but the bird was not often seen.—A. E. P.]

30. Ædemosyne cantans.

Aidemosyne cantans (Gmel.); Grant, Ibis, 1900, p. 131.

a. ♀. Dalado, S. Abyssinia, 12th Dec. No. 230.
b. ♂. Choba, S. Abyssinia, 24th Dec. No. 301.
c. ♀. Hensa, Somaliland, 2nd April. No. 756.

Iris brown; bill dark slate-coloured; legs brown or light purple.

We have already pointed out in 'The Ibis' (1901, p. 519) that Arabian and East-African individuals of this species, named *Æ. orientalis* Lorenz & Hellmayr, are the true *Æ. cantans*, and that it is very doubtful whether the Eastern bird can be separated, even subspecifically, from the West-African form. We should have drawn attention to Mr. Witherby's remarks on this subject, 'Ibis,' 1901, p. 247. The birds from the White Nile belong to the West-African form, in which the barring of the upper parts is generally more obscure. Mr. Witherby contrasts the old and new plumage, as seen in the series of specimens he procured, and makes the following remarks:—"Old plumage, *back and secondaries* faintly barred with brown. New plumage, *back and secondaries* more strongly barred with brownish grey."

It will thus be seen that the bars become faint in the worn plumage.

[The African Silver-bill is locally distributed.—A. E. P.]

31. ESTRILDA MINOR.

Estrilda minor (Cab.); Grant, Ibis, 1900, p. 131.

a–c. ♂ ♀. Jeffi Dunsa, S. Abyssinia, 28th Dec. Nos. 331–333.

Iris brown; bill red; legs black.

[The Lesser Amaduvade was found in reeds by water, where it was very common and met with in dense flocks.—A. E. P.]

32. ESTRILDA RHODOPYGA.

Estrilda rhodopyga Sundev.; Grant, Ibis, 1900, p. 131.

a. ? Balawa, S. Abyssinia, 20th Nov. No. 78.

b, c. ♂. Choba, S. Abyssinia, 24th Dec. Nos. 298, 299.

d. ♂. Ounji, S. Abyssinia, 19th Feb. No. 543.

Iris brown; bill and legs black.

[The habits of this Red-rumped Amaduvade are similar to those of *Estrilda minor*, but the present species frequents the bush more than the reeds.—A. E. P.]

33. ESTRILDA NIGRIMENTUM.

Estrilda nigrimentum Salvad.; Hawker, Ibis, 1899, p. 61; Grant, Ibis, 1901, p. 285.

a. ♂. Owaramulka, S. Abyssinia, 7th Mar. No. 634.

Iris brown; bill steel-blue; legs black.

The male has the breast more distinctly washed with pink than the female.

[The Black-chinned Amaduvade was shot in trees overhanging the river and only seen on one occasion.—A. E. P.]

34. ESTRILDA PHŒNICOTIS.

Estrilda phœnicotis Swains.; Grant, Ibis, 1900, p. 131.

a, b. ♂ ♀. Harrar, S. Abyssinia, 25th Nov. **Nos. 115, 116.**

c. ♂. Choba, S. Abyssinia, 24th Dec. **No. 300.**

d. ♂. Balchi, S. Abyssinia, 26th Dec. **No. 316.**

e. ♂. Daba, S. Abyssinia, 7th Feb. **No. 469.**

f. ♂ ♀. Kora, S. Abyssinia, 10th Feb. **Nos. 482, 483.**

Iris brown; bill dusky pink, edges dark.

[The Cordon Bleu or Crimson-eared Waxbill frequents low bushes and is very widely distributed.—A. E. P.]

35. GRANATINA IANTHINOGASTER.

Granatina ianthinogaster (Reichen.); Grant, Ibis, 1900, p. 132.

a, b. ♂ ♀. Hülül, S. Abyssinia, 3rd Dec. **Nos. 164, 165.**

c. ♂ imm. Moulou R., S. Abyssinia, 13th Dec. **No. 233.**

d, e. ♂ ♀. Arbawun, S. Abyssinia, 10th Mar. **Nos. 661, 662.**

f, g. ♂ ♀. Moulou R., S. Abyssinia, 15th Mar. **Nos. 687, 688.**

Iris and eyelids red; bill red; legs black.

The adult female differs from the immature bird in having the bill red, the feathers above and below the lores and eye whitish lilac, and the breast and belly spotted with white.

[We found the Purple-bellied Amaduvade very common on the low ground, where it frequents the bush.—A. E. P.]

36. ANAPLECTES MELANOTIS.

Anaplectes melanotis (Lafr.); Sharpe, Cat. B. Brit. Mus. xiii. p. 413 (1890); Grant, Ibis, 1901, p. 285.

a. ♀. Anjerra, S. Abyssinia, 30th Nov. No. 134.

b. ♀. Hülül, S. Abyssinia, 2nd Dec. No. 153.

c. ♂ ad. Quala, S. Abyssinia, 30th Jan. No. 425.

d. ♂ imm. Hoorsa, S. Abyssinia, 22nd Mar. No. 723.

Iris brown; bill red; legs dusky.

The only fully adult male has the back brown, as in typical specimens of *A. melanotis*, and differs in a marked degree from *A. blundelli*, which was obtained by Lord Lovat at Beni Schongul, in Southern Abyssinia, to the west of the Blue Nile.

[The Black-eared Scarlet Weaver-Finch was met with in the thick bush-country, its nests being suspended from high branches of big trees, often directly overhanging the water. The nests had long straight spouts as entrances, and were being built in March. This species occurred in isolated pairs.—A. E. P.]

37. HETERHYPHANTES BAGLAFECHT.

Heterhyphantes baglafecht (Vieill.); Grant, Ibis, 1900, p. 132.

a. ♂ imm. Harrar, S. Abyssinia, 25th Nov. No. 112.

Iris pale yellow; bill black; legs light brown.

[We got the Baglafecht Weaver-Finch in cultivated country near the town.—A. E. P.]

38. SITAGRA SUBPERSONATA.

Sitagra subpersonata (Cab.); Sharpe, Cat. B. Brit. Mus. xiii. p. 427 (1890).

a, b. ♀ & ♂ imm. Owaramulka, S. Abyssinia, 7th Mar. Nos. 629, 630.

Iris yellow-brown; bill black; legs slate-coloured.

The specimens appear to agree perfectly with West-African examples of *S. subpersonata.*

[Mr. Harwood shot these Masked Weaver-Finches in March, not having seen them when we camped at the same place in the preceding December. They spent most of their time running on the branches and, presumably, feeding on insects.—A. E. P.]

39. HYPHANTORNIS GALBULA.

Hyphantornis galbula (Rüpp.); Grant, Ibis, 1900, p. 133; 1901, p. 285.

a. ♂. Daira Aila, S. Abyssinia, 11th Dec. No. 226.
b. ♂. Choba, S. Abyssinia, 24th Dec. No. 297.
c. ♂ imm. Ounji, S. Abyssinia, 19th Feb. No. 545.
d. ♀. Tadejemulka, S. Abyssinia, 4th Mar. No. 615.

a, b. Iris orange; bill black; legs brown.

c, d. Iris brown; bill and legs dusky brown.

[The Little Yellow Weaver-Finch was quite a common bird.

Speke's Weaver-Finch in a very open grass country with a few small thorn-trees.—A. E. P.]

43. CINNAMOPTERYX RUBIGINOSUS.

Cinnamopteryx rubiginosus (Rüpp.); Sharpe, P. Z. S. 1895, p. 468.

a–c. ♂. Owaramulka, S. Abyssinia, 6th & 7th March. Nos. 626–628.

Iris red-brown; bill black; legs dusky brown.

The three males are in almost full breeding-plumage.

[We were at Owaramulka in December, but did not see the Chestnut Weaver-Finch there till our return in March, when we found it common among the tall trees. —A. E. P.]

44. TEXTOR INTERMEDIUS.

Textor intermedius Cab.; Sharpe, Cat. B. Brit. Mus. xiii. p. 511 (1890); Hawker, Ibis, 1899, p. 63.

Textor albirostris Grant (nec Vieill.), Ibis, 1900, p. 134*.

a. ♂. Kassam River, S. Abyssinia, 21st Dec. No. 275.

b, c. ♂ imm. Alaga, S. Abyssinia, 25th Feb. Nos. 575, 576.

d. ♀ imm. Arbawun, S. Abyssinia, 11th Mar. No. 666.

e. ♂. Daira Aila, S. Abyssinia, 18th Mar. No. 696.

Iris brown; bill red-brown; legs dark brown.

Textor intermedius appears to be barely distinguishable from *T. scioanus* Salvad.

[The Black Weaver-bird was observed feeding on the ground with the Glossy Starlings and Hornbills—in flocks of from twenty to thirty. Its nest, which is placed in high trees, is built of large sticks, and is very large in proportion to the size of the bird.—A. E. P.]

45. DINEMELLIA DINEMELLI.

Dinemellia dinemelli (Rüpp.); Sharpe, P. Z. S. 1895 p. 469; Hawker, Ibis, 1899, p. 62; Grant, Ibis, 1901, p. 286.

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* The specimen collected by Lord Lovat was correctly named and put away in the collection, but by an unfortunate accident was wrongly entered as *T. albirostris*.

a, b. ♂ ♀. Filwa, S. Abyssinia, 20th Dec. Nos. 267 & 270.

c. ♂. Arbawun, S. Abyssinia, 11th Mar. No. 665.

Iris brown; bill and legs black.

[We found the Great White-headed Weaver-bird quite common in the low country, always in noisy companies of from twelve to fifteen, frequenting the bush and feeding on the ground. It is especially noisy when approached.—A. E. P.]

46. CHRYSOMITRIS NIGRICEPS.

Chrysomitris nigriceps (Rüpp.); Grant, Ibis, 1900, p. 134.

a, b, c. ♂ ♀. Adis Ababa, S. Abyssinia, 2nd–5th Jan. Nos. 347, 355, & 356.

Iris brown; bill and legs black.

[The Black-headed Siskin was only seen on the high plateau near habitations and cultivated ground, where it was numerous.—A. E. P.]

47. CHRYSOMITRIS CITRINELLOIDES.

Chrysomitris citrinelloides (Rüpp.); Grant, Ibis, 1900, p. 134.

a. ♂. Adis Ababa, S. Abyssinia, 13th Jan. No. 371.

Iris brown; bill dusky brown; legs black.

The Abyssinian Citril-Finch is a very welcome addition to the British Museum Collection.

48. PETRONIA PYRGITA.

Petronia pyrgita (Heugl.); Sharpe, P. Z. S. 1895, p. 469; Lort Phillips, Ibis, 1898, p. 397; Hawker, Ibis, 1899, p. 63.

a, b. ♂. Daira Aila, S. Abyssinia, 10th & 11th Dec. Nos. 220 & 222.

Iris and bill brown; legs dark slate-coloured.

[The Abyssinian Rock-Sparrow was rather shy and was not frequently seen.—A. E. P.]

49. PASSER CASTANOPTERUS.

Passer castanopterus Blyth; Lort Phillips, Ibis, 1898, p. 397.

a. ♂. Zaila, Somaliland, 4th April. No. 770.

Iris brown; bill black; legs brown.

It is curious that the female of this species has not been brought home in any collection that has passed through our hands, and, so far as we are aware, it has never been described, though this Sparrow is common at Zaila.

[We only observed the Chestnut-winged Sparrow on the coast.—A. E. P.]

50. Passer swainsoni.

Passer swainsoni (Rüpp.); Grant, Ibis, 1900, p. 135; 1901, p. 286.

a. ♀. Dagu Delali, S. Abyssinia, 21st Nov. No. 87.
b. ♀. Harrar, S. Abyssinia, 24th Nov. No. 100.
c. ♂. Errer Gōta, S. Abyssinia, 6th Dec. No. 202.
d. ♂. Kassam R., S. Abyssinia, 22nd Dec. No. 291.
e. ♂. Kora, S. Abyssinia, 12th Feb. No. 494.
f. ♀. Owaramulka, S. Abyssinia, 7th Mar. No. 631.

Iris brown; bill black; legs dusky brown.

[The Common Sparrow of the upper countries was Swainson's; it was not seen on the maritime plain.—A. E. P.]

51. Poliospiza tristriata.

Poliospiza tristriata (Rüpp.); Grant, Ibis, 1900, p. 135.

a. ♂. Dagu Delali, S. Abyssinia, 21st Nov. No. 79.

Iris brown; bill dusky brown; legs brown.

[The Three-striped Sparrow was seen on the plains east of Harrar.—A. E. P.]

52. Serinus maculicollis.

Serinus maculicollis Sharpe, P. Z. S. 1895, p. 470, pl. xxvii. fig. 1; Elliot, Field Columb. Mus. Orn. i. no. 2, p. 36 (1897); Lort Phillips, Ibis, 1898, p. 399; Hawker, Ibis, 1899, p. 63.

a. ♂. Fullfully, S. Abyssinia, 5th Dec. No. 191.
b. ♀. Katyinwaha, S. Abyssinia, 18th Dec. No. 253.
c. ♂. Filwa, S. Abyssinia, 20th Dec. No. 271.

Iris brown; bill and legs dark brown.

The description and figure of the type were taken from an immature male, which has a dark band across the fore-neck, characteristic of the adult female. In the fully adult male the throat, fore-neck, and breast are uniform bright yellow.

[Donaldson-Smith's Serin-Finch frequented the tops of Mimosa and other trees.—A. E. P.]

53. SERINUS REICHENOWI.

Serinus reichenowi Salvad.; Grant, Ibis, 1900, p. 136.

a, b. ♂ ♀. Kora, S. Abyssinia, 11th Feb. Nos. 486 & 487.

Iris brown; bill and legs dusky black.

[We obtained an adult pair of Reichenow's Serin-Finch, which, where it occurs, is very common.—A. E. P.]

54. EMBERIZA HORTULANA.

Emberiza hortulana Linn.; Grant, Ibis, 1900, p. 136.

a. ♀. Akaki River, S. Abyssinia, 29th Dec. No. 338.

b, c. ♂. Mt. Sequala, S. Abyssinia, 26th Jan. Nos. 396–397.

d. ♂. Roguecha, S. Abyssinia, 15th Feb. No. 507.

Iris, bill, and legs brown.

[The Ortolan Bunting was only observed on the Shoan plateau and the Upper Hawash. It frequented the stables and compound at Adis Ababa.—A. E. P.]

55. EMBERIZA POLIOPLEURA.

Emberiza poliopleura (Salvad.); Grant, Ibis, 1900, p. 136.

a. ♂. Katyinwaha, S. Abyssinia, 18th Dec. No. 250.

Iris brown; bill dark brown; legs brown.

[The Yellow-throated Bunting was not often seen; it conceals its bright yellow breast by keeping to the lower parts of thick bushes.—A. E. P.]

56. FRINGILLARIA TAHAPISI.

Fringillaria tahapisi (Smith); Grant, Ibis, 1900, p. 137.

a. ♂. Balchi, S. Abyssinia, 27th Dec. No. 318.

b. ♀. Adis Ababa, S. Abyssinia, 4th Jan. No. 252.

c, d. ♂ ♀. Roguecha, S. Abyssinia, 15th Feb. Nos. 505, 506.

Iris brown; bill dark brown; legs light brown.

[The Rock-Bunting was common on the plateau, perching on stones and rocks in the proximity of water.—A. E. P.]

57. ALÆMON DESERTORUM.

Alæmon desertorum (Stanl.); Hawker, Ibis, 1899, p. 65; Grant, Ibis, 1901, p. 287.

a. ♂. Zaila, Somaliland, 6th Nov. No. 14.

b. ♂. Aroharlaise, Somaliland, 4th April. No. 767.

c, d. ♂ ♀. Zaila, Somaliland. 8th April. Nos. 771, 772.

Iris brown; bill grey; legs white.

[The Desert-Larks were all shot on the maritime plain, where they were quite common. Their note is a sweet whistle. They feed on the ground and do so by night, at any rate when there is a moon.—A. E. P.]

58. TEPHROCORYS RUFICEPS.

Tephrocorys ruficeps (Rüpp.); Grant, Ibis, 1900, p. 137.

a, b. ♂. Jeffi Dunsa, S. Abyssinia, 28th Dec. Nos. 320, 334.

Iris brown; bill black; legs brown.

[We observed the Abyssinian Rufous-capped Lark only on the high plateau.—A. E. P.]

59. ALAUDA PRÆTERMISSA.

Alauda prætermissa Blanf.; Grant, Ibis, 1900, p. 138.

a. ♂ imm. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 319.

b. ♂. Jeffi Dunsa, S. Abyssinia, 29th Dec. No. 336.

Iris brown; bill dark brown; legs brown.

[These two specimens of Blanford's Crested Lark were killed out of the same flock near a stream. The immature bird No. 319 is a partial albino, and looked very distinct when flying with its companions at a great distance.—A. E. P.]

60. SPILOCORYDON HYPERMETRUS.

Spilocorydon hypermetrus Reichenow; Grant, Ibis, 1900, p. 138.

a. ? Errer Gōta, S. Abyssinia, 6th Dec. No. 205.

b. ♂. Katyinwaha, S. Abyssinia, 18th Dec. No. 255.

a. Wing 4·75, tail 3·7 inches.

b. ♂. Wing 4·6, tail 3·6 inches.

Iris brown; bill dark brown; legs brown.

[The Giant Red-winged Lark was very common in the Hawash Valley; it sings in all weathers, and perches most frequently on dead tree-stumps and old wood. It is often seen on the telephone-posts between the Hawash Bridge and the capital.—A. E. P.]

61. MIRAFRA CANTILLANS.

Mirafra cantillans Blyth; Grant, Novit. Zool. vii. p. 248 (1900).

Geocoraphus simplex Heugl. Orn. N.O.-Afrika, p. 687 (1871).

Mirafra marginata Hawker, Bull. B. O. C. vii. p. lv (1898); id. Ibis, 1899, pl. ii. fig. 2.

a, b, c. ♂ ♀. Filwa, S. Abyssinia, 20th Dec. Nos. 264–266.

Iris and bill dark brown; legs light brown.

With the additional material now available it becomes apparent that *M. marginata* of Hawker is synonymous with *M. cantillans* of Blyth, and the range of the species therefore extends from India through S.W. Asia and Arabia to Somaliland. It has already been shown (Grant, *op. cit.*) that *Geocoraphus simplex* from Arabia was founded on a worn specimen of *M. cantillans*. The type of *M. marginata* is, on the other hand, quite a freshly moulted bird, and Mr. Hawker and others were deceived by the apparent difference in plumage when comparing the two (*cf.* Ibis, 1899, p. 65).

[We saw the Singing Bush-Lark among high grass; it has a rapid straight flight.—A. E. P.]

62. MIRAFRA INTERCEDENS.

Mirafra intercedens (Reichenow); Elliot, Field Columb. Mus. Orn. i. no. 2, p. 37 (1897); Hawker, Ibis, 1899, p. 64.

a. ♀. Melkadegaga, S. Abyssinia, 28th Feb. No. 557.

Iris brown; bill dark brown; legs light ashy brown.

[Reichenow's Bush-Lark was found in thin bush and prairie country between the river and hills.—A. E. P.]

63. MIRAFRA FISCHERI.

Mirafra fischeri Reichenow; Salvad. Ann. Mus. Civ. Gen. xxvi. p. 267 (1888).

a, b. ♂. Kora, S. Abyssinia, 10th & 11th Feb. Nos. 481 & 491.

Iris brown; upper mandible dark horn-coloured, lower lighter; legs brown.

This is the first time we have received specimens of this Lark from Abyssinia, though it has already been recorded from Shoa by Count Salvadori.

[Fischer's Bush-Lark was heard in the early morning, its note being a muffled rattle-like noise. When on the wing it soared high out of sight, then fell rapidly to within twenty or thirty feet of the ground, and swerved for a hundred yards or so before alighting. It was generally seen in large bare woods; and we never came across it except in the edge of the Gueragué country.—A. E. P.]

64. GALERIDA CRISTATA.

Galerita cristata (Linn.); Sharpe, P. Z S. 1895, p. 472; Lort Phillips, Ibis, 1898, p. 401; Hawker, Ibis, 1899, p. 65.

a. ♂. Somadu, Somaliland, 13th Nov. No. 35.

c, d. ♂. Las Mân, Somaliland, 1st April. Nos. 752 & 753.

Iris brown; bill dark brown; legs pale brown.

[The Crested Lark was very common throughout Somaliland.—A. E. P.]

65. AMMOMANES AKELEYI.

Ammomanes arkeleyi (sic) Lort Phillips, Ibis, 1898, p. 401.

Ammomanes akeleyi Elliot; Hawker, Ibis, 1899, p. 65.

a. ♂. Somadu, Somaliland, 13th Nov. No. 32.

b. ♂. Las Mân, Somaliland, 1st April. No. 754.

Iris brown; bill dark horn-coloured; legs light horn-coloured or pale brown.

The male from Somadu, which we have identified as *A. akeleyi* Elliot, is slightly darker on the upper parts than specimens in the British Museum Collection from Somaliland.

[We found Elliot's Desert-Lark only in the bare stony country of Somaliland, on ground similar in colour to the bird's plumage. It did not take flight until approached very closely.—A. E. P.]

66. PYRRHULAUDA LEUCOTIS.

Pyrrhulauda leucotis (Stanl.); Grant, Ibis, 1900, p. 139.

a. ♂ imm. Mallabella, S. Abyssinia, 25th Dec. No. 309.

b. ♂. Balchi, S. Abyssinia, 26th Dec. No. 315.

Iris brown; bill slate-coloured; legs dusky slate-coloured.

This Chestnut-backed Finch-Lark must not be confounded with *P. otoleuca* (Temm.), a very distinct species well-figured in the Planches Col. iii. pl. 269. fig. 2, which may be at once distinguished by the absence of the black patch on the lesser wing-coverts.

67. PYRRHULAUDA MELANAUCHEN.

Pyrrhulauda melanauchen (Cab.); Sharpe, P. Z. S. 1895, p. 472; Grant, Ibis, 1901, p. 286.

a, b. ♂ ad. et ♂ imm. Zaila, Somaliland, 8th Nov. Nos. 19 & 20.

c. ♂. Manda, Somaliland, 3rd Mar. No. 763.

d. Juv. Aroharlaise, Somaliland, 3rd April. No. 766.

Iris brown or pinkish white; bill grey; legs brown.

Young and nesting birds show interesting gradations of plumage.

[The Common Finch-Lark was breeding in great numbers one day's journey inland from the coast at the end of March.—A. E. P.]

68. MOTACILLA ALBA.

Motacilla alba Linn.; Grant, Ibis, 1900, p. 139.

a. ♂. Kassam River, S. Abyssinia, 21st Dec. No. 278.

Iris brown; bill and legs black.

[The White Wagtail was seen wherever there was water from Zaila to Adis Ababa.—A. E. P.]

69. MOTACILLA VIDUA.

Motacilla vidua Sundev.; Grant, Ibis, 1900, p. 139.

a. ♂. Lake Ailan, S. Abyssinia, 29th Jan. No. 418.

Iris brown; bill and legs black.

[The African Pied Wagtail was seen on the Hawash as well as on the shore of Lake Ailan. We never observed it near the little pools and runnels.—A. E. P.]

70. MOTACILLA LONGICAUDATA.

Motacilla longicauda Rüpp.; Sharpe, Cat. B. Brit. Mus. x. p. 495 (1885).

a. ♂. Kora, S. Abyssinia, 10th Feb. No. 472.

Iris brown; bill and legs black.

This is the first time that the British Museum has received a specimen of this species from Abyssinia, the most northern locality yet recorded being Kilimanjaro.

[We saw only one specimen of the Long-tailed Pied Wagtail; it was obtained near some rain-pools in the rocky bed of a stream.—A. E. P.]

71. MOTACILLA FLAVA.

Motacilla flava Linn.; Sharpe, P. Z. S. 1895, p. 473; Hawker, Ibis, 1899, p. 66.

a. ♂. Tadejemulka, S. Abyssinia, 23rd Dec. No. 292.

b. ♂. Balchi, S. Abyssinia, 26th Dec. No. 317.

Iris brown; bill and legs black.

[The Blue-headed Yellow Wagtail was seen everywhere from the sea to the high plateaux. It perches on lofty trees, bushes, rocks, &c., as well as on the ground.—A. E. P.]

72. MOTACILLA FELDEGGI.

Motacilla feldeggi Michah.; Grant, Ibis, 1900, p. 140.

a, b. ♂. Lake El Toki, S. Abyssinia, 27th Feb. Nos. 585 & 587.

Iris brown; bill and legs black.

[The Black-headed Wagtail was seen only among the low reeds and rushes growing round the lake of El Toki.—A. E. P.]

73. MOTACILLA PARADOXA.

Motacilla paradoxa (Brehm); Sharpe, Cat. B. Brit. Mus. x. p. 531 (1885).

a, b. ♂ ♀ imm. Tadejemulka, S. Abyssinia, 5th Mar. Nos. 620, 621.

Iris brown; bill and legs black.

The occurrence of Brehm's Yellow Wagtail in Southern Abyssinia is very interesting. The range, as given by Dr. Sharpe in the 'Catalogue of Birds,' is "from Hungary and Dalmatia to S. Russia and the Crimea as far as long. 47° E." Since the Catalogue was published two additional examples of this rare species have been found in the Hume

Collection wrongly identified as *M. feldeggi*—one obtained at Etawah and the other at Sambhur. The male bird in Mr. Pease's collection, which is in almost full breeding-plumage, though the crown is not yet entirely in the black state, differs from all the three specimens in the collection in having the thighs *yellow* instead of ashy white; the miniature female has the thighs of the latter colour. In every other respect the male from Abyssinia agrees closely with *M. paradoxa*, and we have no hesitation in referring it to this form.

74. ANTHUS PRATENSIS.

Anthus pratensis (Linn.); Sharpe, Cat. B. Brit. Mus. x. p. 580 (1885).

a. ♂. Hojojo, S. Abyssinia, 15th Dec. No. 240.

Iris light brown; bill dark brown; legs light brown.

[We found the Meadow-Pipit in bush-country, perching on trees. It was seldom seen.—A. E. P.]

75. ANTHUS CAMPESTRIS.

Anthus campestris (Linn.); Lort Phillips, Ibis, 1898, p. 401; Hawker, Ibis, 1899, p. 66.

a. ♂. Mallabella, S. Abyssinia, 25th Dec. No. 308.

Iris brown; bill brown; legs light brown.

[The Tawny Pipit was shot near jowari cultivation on the plateau.—A. E. P.]

76. ANTHUS PYRRHONOTUS.

Anthus pyrrhonotus (Vieill.); Grant, Ibis, 1900, p. 140.

a–c. ♂ ♀. Harrar, S. Abyssinia, 24th–25th Nov. Nos. 97, 108, & 110.

Iris brown; upper mandible black, lower yellow; legs yellow-brown.

[The Cinnamon-breasted Pipit was commoner on the intermediate plateaux than elsewhere. I do not remember seeing it at Adis Ababa or in that neighbourhood.—A. E. P.]

77. ANTHUS SORDIDUS.

Anthus sordidus Rüpp.; Grant, Ibis, 1900, p. 141.

a. ♂. Dagu Deluli, S. Abyssinia, 21st Nov. No. 81.

b. ♂. Balchi, S. Abyssinia, 26th Dec. No. 312.
c. ♀. Guelan, S. Abyssinia, 24th Jan. No. 387.
d. ♀. Jello, S. Abyssinia, 16th Feb. No. 518.
e. ♂. Melkadegaga, S. Abyssinia, 23rd Feb. No. 556.

Iris and bill dark brown; legs brown or light brown.

[The Brown Pipit ranged from the high plateau down to the Hawash Valley, and was very common.—A. E. P.]

78. ANTHUS RUFULUS.

Anthus rufulus Vieill.; Grant, Ibis, 1900, p. 141.

a. ♀. Ounji, S. Abyssinia, 19th Feb. No. 539.

Iris brown; bill dark; legs light brown.

[We obtained the Indian Pipit within a mile of the Hawash River and the cultivated land bordering it.—A. E. P.]

79. ANTHUS CERVINUS.

Anthus cervinus (Pall.); Grant, Ibis, 1900, p. 142.

a. ♀. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 327.
b. ♀. Adis Ababa, S. Abyssinia, 2nd Jan. No. 345.

Iris brown; bill and legs dark brown.

[The Red-throated Pipit was very common on the high plateau, but does not frequent the low ground.—A. E. P.]

80. MACRONYX FLAVICOLLIS.

Macronyx flavicollis Rüpp.; Grant, Ibis, 1900, p. 142.

a, b. ♂. Jeffi Dunsa, S. Abyssinia, 28th Dec. Nos. 322 & 335.
c. ♀. Adis Ababa, S. Abyssinia, 31st Dec. No. 343.

Iris brown; upper mandible black, lower slate-coloured; legs brown.

[The Yellow-throated Pipit was very easily obtained. It has a clear note, uttered when on the wing as well as when settled on trees. It was common over the higher plateau, and generally to be seen in pairs.—A. E. P.]

81. NECTARINIA CUPREONITENS.

Nectarinia cupreonitens Gadow; Grant, Ibis, 1900, p. 143.

a. ♀. Adis Ababa, S. Abyssinia, 2nd Jan. No. 346.

Iris brown; bill and legs black.

[We shot the Abyssinian Malachite Sun-bird on the hillside amidst flower-, creeper-, and bush-country.—A. E. P.]

82. NECTARINIA PULCHELLA.

Nectarinia pulchella (Linn.); Grant, Ibis, 1900, p. 143.

a. ♀. Harrar, S. Abyssinia, 25th Nov. No. 109.

b. ♀ [♂ imm.]. Daira Aila, S. Abyssinia, 10th Dec. No. 218.

c, d. ♂. Alaga, S. Abyssinia, 24th Feb. Nos. 565, 566.

e. ♀. Owaramulka, S. Abyssinia, 7th Mar. No. 633.

Iris brown; bill and legs black.

[The Beautiful Sun-bird was observed chiefly near the hills in the Hawash Valley and in the gardens near Harrar.—A. E. P.]

83. NECTARINIA METALLICA.

Nectarinia metallica Licht.; Gadow, Cat. B. Brit. Mus. ix. p. 9 (1884).

Hedydipna metallica Lort Phillips, Ibis, 1898, p. 404.

Nectarinia muelleri Lorenz & Hellmayr, J. f. O. 1901, p. 237 [S. Arabia].

a–c. ♂. Dabas R., Somaliland, 29th Mar. Nos. 735–737.

d–f. ♂. Somadu, Somaliland, 31st Mar.–1st April. Nos. 741, 749, 750.

g. ♂. Zaila, Somaliland, 4th April. No. 769.

Iris brown; bill and legs black.

[We did not see the Blue-collared Long-tailed Sun-bird once during the autumn, but on our return journey through Somaliland we frequently met with it after leaving the mountains, generally feeding and haunting the bhor-plant growing in the tugs or river-beds. It was very common at Warabod and Tokosha.—A. E. P.]

84. CINNYRIS HABESSINICUS.

Cinnyris habessinicus (H. & E.); Grant, Ibis, 1900, p. 144; 1901, p. 287.

a, b. ♂ ♀. Somadu, Somaliland, 13th Nov. Nos. 34 & 36.

c–e. ♂ et ♂ imm. Arbawun, S. Abyssinia, 16th Dec. Nos. 243–245.

f. ♂. Hawash Bridge, S. Abyssinia, 19th Dec. No. 262.

g–k. ♂. Lake El Toki, S. Abyssinia, 26th Feb.–1st Mar. Nos. 581 & 596–598.

l. ♀. Dabas River, Somaliland, 29th Mar. No. 739.

Iris brown; bill and legs black.

[Though all the Abyssinian Splendid Sun-birds were obtained either in low country or the valley of the Hawash, the species probably extends to the intermediate plateau. It feeds on the red parasitical growth found on Mimosas &c. and on the flowers of the dar, aloe, and various creepers.—A. E. P.]

A nest of this species was discovered containing two eggs. It is of the usual elegant type (*cf.* Ibis, 1898, p. 403). The eggs are of a rather long oval shape, and are pale blue finely dotted all over with faint purplish-grey and distinct reddish-brown marks. Measurements: 0·72 × 0·5 inch.

85. CINNYRIS ALBIVENTRIS.

Cinnyris albiventris (Strickl.); Sharpe, P. Z. S. 1895, p. 474; Lort Phillips, Ibis, 1898, p. 403; Hawker, Ibis, 1899, p. 67.

a. ♂. Las Mân, Somaliland, 12th Nov. No. 28.

b. ♂. Somadu, Somaliland, 13th Nov. No. 33.

Iris brown; bill and legs black.

[We shot the East-African Sun-bird in the jungle by the river-bed.—A. E. P.]

86. CINNYRIS OSIRIS.

Cinnyris osiris (Finsch); Sharpe, P. Z. S. 1895, p. 474; Hawker, Ibis, 1899, p. 66.

a. ♂. Fullfully, S. Abyssinia, 5th Dec. No. 189.

b. ♀. Lake Ailan, S. Abyssinia, 3rd Feb. No. 445.

c. ♂. Lake Zwai, S. Abyssinia, 5th Feb. No. 460.

d–h. ♂ et ♂ imm. Jello, S. Abyssinia, 17th Feb. Nos. 520–524.

i. ♂. Melkadegaga, S. Abyssinia, 22nd Feb. No. 555.

Iris brown; bill and legs black.

[The Abyssinian Bifasciated Sun-bird was common near the hills and on the higher ground.—A. E. P.]

87. CINNYRIS GUTTURALIS.

Cinnyris gutturalis (Linn.), Gadow, Cat. B. Brit. Mus. ix. p. 91 (1884).

a. ♀. Kora, S. Abyssinia, 11th Feb. No. 488.

b. ♀. Roguecha, S. Abyssinia, 4th Feb. No. 499.

Iris brown; bill and legs black.

[We never saw a male of the Natal Scarlet-chested Sunbird.—A. E. P.]

88. ANTHOTHREPTES ORIENTALIS.

Anthothreptes orientalis Hartl.; Sharpe, P. Z. S. 1895, p. 475; Lort Phillips, Ibis, 1898, p. 404; Hawker, Ibis, 1899, p. 67.

a. ♂. Somadu, Somaliland, 13th Nov. No. 40.

b. ♀. Dahol, Somaliland, 15th Nov. No. 61.

c. ♀ [? ♂ imm.]. Tadcjemulka, S. Abyssinia, 23rd Dec. No. 295.

Iris brown; bill and legs black.

[The Eastern Violet-tailed Sun-bird was not often seen.—A. E. P.]

89. ZOSTEROPS POLIOGASTER.

Zosterops poliogaster Heugl.; Grant, Ibis, 1900, p. 145.

a, b. ♂. Dagu Delali, S. Abyssinia, 21st Nov. Nos. 88 & 90.

Iris brown; bill black; legs dark slate-coloured.

[The Grey-bellied White-eye was seen pretty often, generally haunting the very tops of Mimosa and other trees.—A. E. P.]

90. PARUS LEUCOMELAS.

Parus leucomelas Rüpp.; Grant, Ibis, 1900, p. 145.

a. ♂. Sequala, S. Abyssinia, 26th Jan. No. 398.

b. ♂. Ounji, S. Abyssinia, 19th Feb. No. 546.

Iris brown; bill and legs black.

[This rare Black-and-White Tit frequents the larger trees. It was not very common, and was always seen in pairs.—A. E. P.]

91. PARUS LEUCONOTUS.

Parus leuconotus Guér.; Grant, Ibis, 1900, p. 145.

a. ♂. Dagu Delali, S. Abyssinia, 21st Nov. No. 82.

Iris brown; bill black; legs dark slate-coloured.

[The Buff-backed Tit was only seen in the ravines and gorges, where it generally perched on rocks.—A. E. P.]

92. PARUS THRUPPI.

Parus thruppi Shelley, Ibis, 1885, p. 406, pl. xi.; Sharpe, P. Z. S. 1895, p. 476; Hawker, Ibis, 1899, p. 67.

a, b. ♂ ♀. Arto, Somaliland, 18th Nov. Nos. 63, 64.

Iris dark brown; bill black; legs slate-coloured.

[Thrupp's Tit was seen in pairs. It was not met with after leaving Somaliland.—A. E. P.]

93. TELEPHONUS BLANFORDI.

Telephonus blanfordi (Sharpe); Grant, Ibis, 1900, p. 146.

a–c. ♀. Harrar, S. Abyssinia, 24th & 25th Nov. Nos. 101, 111, & 113.

d. ♀. Hülül, S. Abyssinia, 3rd Dec. No. 160.

e. ♂. Choba, S. Abyssinia, 24th Dec. No. 304.

f. ♂. Adis Ababa, S. Abyssinia, 16th Jan. No. 376.

g. ♀. Daba, S. Abyssinia, 7th Feb. No. 470.

h. ♂. Melkadegaga, S. Abyssinia, 22nd Feb. No. 553.

Iris brown, with white spots round the pupil; bill black; legs slate-coloured.

[Blanford's Red-winged Bush-Shrike is very common up-country and is found singly or in pairs in the lower bushes, creeping, when alarmed, into the thickest parts.—A. E. P.]

94. DRYOSCOPUS FUNEBRIS.

Dryoscopus funebris Hartl.; Grant, Ibis, 1900, p. 147.

a. ♂. Las Mân, Somaliland, 13th Nov. No. 44.

b. ♀. Hülül, S. Abyssinia, 2nd Dec. No. 154.

c. ♀. Melkadegaga, S. Abyssinia, 20th Feb. No. 550.

Iris brown; bill and legs black.

[The Slate-blacked Bush-Shrike is common and is most often seen in the Ergin bush (*Euphorbia*). It is skilful at hiding, and when in thick cover utters a deep note, like the sound of a Jew's harp. It is seen singly or in pairs.—A.E.P.]

95. Dryoscopus æthiopicus.

Dryoscopus æthiopicus (Gmel.); Grant, Ibis, 1900, p. 147.

a. ♂. Harrar, S. Abyssinia, 22nd Nov. No. 91.

Iris brown; bill black; legs slate-coloured.

[The Ethiopian Bush-Shrike is found in all rocky places where the bush is thick, such as the margins of a river-bed where there is jungle and cliff. Its note was perhaps the most attractive of any that I heard, being round, full, metallic, and bell-like, in two cadences. It was answered immediately by the female with a guttural hiss. Though frequently heard, the birds are not easy to detect unless you sit down in hiding and wait for them to emerge, when they will come and inspect you.—A. E. P.]

96. Dryoscopus malzacii.

Dryoscopus gambensis (Licht.); Gadow, Cat. B. Brit. Mus. viii. p. 146 (1883) (part.); Grant, Ibis, 1900, p. 147.

Malaconotus malzacii Heugl. Syst. Uebers. p. 34.

Dryoscopus malzacii (Heuglin); Neumann, J. f. O. 1899, pp. 411, 412.

Dryoscopus malzacii erythreæ Neumann, J. f. O. 1899, p. 412.

a, b. ♂ et ♂ imm. Tadejemulka, S. Abyssinia, 23rd Dec. Nos. 293 & 294.

c. ♀. Alaga, S. Abyssinia, 25th Feb. No. 571.

d. ♂. Katyinwaha, S. Abyssinia, 1st Mar. No. 651.

e. ♀. Moulou River, S. Abyssinia, 15th Mar. No. 684.

Adult. Iris bright red; bill black, lower mandible slate-coloured; legs slate-coloured.

Immature. Iris brown; bill and legs dark slate-coloured.

Mr. Neumann has very properly pointed out (*op. cit.*) that the true *Dryoscopus gambensis* (Licht.), from Senegambia, is a species very distinct from *D. malzacii*, the type of which comes from the White Nile. The females of the two forms are quite distinct, and the males, though alike in plumage, could probably be distinguished from one another by the larger size of the bill in *D. gambensis*. We cannot, however, agree with Mr. Neumann in recognising "*D. malzacii* *erythreæ*" as a distinct subspecies, the differences in the plumage of the females being, in our opinion, entirely due to season; the specimens of his *D. erythreæ* were all obtained in July, and are in worn plumage, which makes them appear much paler than freshly moulted birds shot in winter, which he refers to typical *D. malzacii*.

[This Puff-backed Bush-Shrike is common, and is generally to be seen feeding in the higher trees.—A. E. P.]

97. LANIARIUS CRUENTUS.

Laniarius cruentus (H. & E.); Grant, Ibis, 1900, p. 148; 1901, p. 287.

a. ♂. Hülül, S. Abyssinia, 3rd Dec. No. 168.
b. ♀. Fullfully, S. Abyssinia, 5th Dec. No. 188.
c. ♀. Dabas, Somaliland, 29th Mar. No. 738.

Iris brown; bill black; legs blue-slate-coloured.

[The Crimson-breasted Bush-Shrike was seen only in the low country. It perches on trees and assumes a vertical position when singing, the note being a long-drawn plaintive whistle. It is often seen in family-parties of as many as eight or ten.—A. E. P.]

98. LANIARIUS SULPHUREIPECTUS.

Laniarius sulphureipectus (Less.); Grant, Ibis, 1901, p. 287.

a, b. ♂ ♀. Bogra, S. Abyssinia, 30th Jan. Nos. 423, 424.
c. ♀. Lake Zwai, S. Abyssinia, 5th Feb. No. 452.
d. ♂. Roguecha, S. Abyssinia, 13th Feb. No. 495.

Iris brown; bill black; legs slate-coloured.

[The Yellow-fronted Bush-Shrike was not rare in very thick bush districts. We never met with it in the Danakil or Somali country.—A. E. P.]

99. LANIARIUS BLANCHOTI.

Malaconotus blanchoti Stephen; Neumann, J. f. O. 1899, p. 392.

Laniarius poliocephalus (Licht.); Gadow, Cat. B. Brit. Mus. viii. p. 156 (1883) (part.).

a. ♂. Marko, S. Abyssinia, 12th Dec. No. 227.
b. ♀. Walda, S. Abyssinia, 24th Feb. No. 562.

c, d. ♂ ♀ imm. Alaga, S. Abyssinia, 24th & 25th Feb. Nos. 568 & 574.

e. ♂. Hoorsa, S. Abyssinia, 22nd Mar. No. 721.

Iris dark yellow; bill black; legs slate-coloured.

It seems to us questionable how far the three forms known as *L. poliocephalus* (Licht.), *L. blanchoti* (Steph.), and *L. approximans* (Cab.) are really specifically distinct from one another; the two former at least occur side by side in Nyasaland, for among many specimens of *L. blanchoti* received from Mr. Alfred Sharpe there is a small specimen from Karungwisi, which can only be referred to typical *L. poliocephalus*, while intermediate forms can be found which might be referred to either *L. poliocephalus* or *L. blanchoti*. The birds brought home by Mr. Pease are very interesting as representing *L. blanchoti* in its most typical form. This, so far as we are aware, has never been obtained so far north, the smaller and darker-breasted *L. approximans* being, according to Neumann, the form found in Southern Abyssinia. The examples of *L. approximans* in the British Museum Collection are from Mombasa, Pangani River, and Lamu. In a female shot by Mr. Pease (specimen *b*) the cinnamon is much more developed on the sides of the breast than it is in the male, and extends to the sides of the abdomen. This characteristic is also found in examples of *L. approximans*.

In two young birds the plumage above resembles that of the adult, but the feathers of the head and neck are edged with brownish, the under parts are whitish yellow, and on the throat and chest the bright yellow and cinnamon feathers are beginning to make their appearance. It is clear that at an early stage the young closely resemble the adults in plumage.

a. Wing 4·8 inches.
e. „ 4·65 „
b. „ 4·6 „

[The Grey-headed Bush-Shrike was not rare in certain localities. It was never seen on the high plateau or east of Gildessa. I saw four young birds in a tree together. When disturbed it often lit upon the ground.—A. E. P.]

100. NILAUS AFER.

Nilaus afer (Lath.); Grant, Ibis, 1900, p. 148.

a. ♂. Kassam River, S. Abyssinia, 22nd Dec. No. 285.

Iris brown; base of bill blue-slate-coloured, tip black; legs blue-slate-coloured.

This Abyssinian Bush-Shrike appears to be rare, as only one example was secured during the present expedition, and Lord Lovat remarks that he only met with it twice during an expedition which lasted over six months.

101. NILAUS MINOR.

Nilaus minor Sharpe, P. Z. S. 1895, p. 479; Lort Phillips, Ibis, 1898, p. 406; Hawker, Ibis, 1899, p. 69.

a. ♂. Aruweina, Somaliland, 14th Nov. No. 48.

Iris brown; base of bill blue-slate-coloured, tip black; legs blue-slate-coloured.

The British Museum does not possess a female of this species; presumably it is like that of *N. capensis*, but smaller.

[The Lesser Bush-Shrike runs on the upper branches of high trees when in search of food, and is generally solitary in its habits.—A. E. P.]

102. LANIUS ISABELLINUS.

Lanius isabellinus H. & E.; Sharpe, P. Z. S. 1895, p. 476.

a. Imm. Somadu, Somaliland, 13th Nov. No. 31.

Iris brown; bill and legs dark slate-coloured.

[We saw only one immature specimen of the Isabelline Shrike in Somaliland.—A. E. P.]

103. LANIUS EXCUBITORIUS.

Lanius excubitorius Des Murs; Grant, Ibis, 1900, p. 148; 1901, p. 287.

a. ♀. Balchi, S. Abyssinia, 26th Dec. No. 311.

Iris brown; bill and legs black.

[The Long-tailed Grey-backed Shrike was seen in large flocks of as many as twenty together. They were very noisy and fond of perching on tall trees, but apparently got their living on the ground.—A. E. P.]

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104. LANIUS HUMERALIS.

Lanius humeralis Stanley; Grant, Ibis, 1900, p. 149.

a, b. ♂ ♀. Harrar, S. Abyssinia, 22nd–24th Nov. Nos. 92 & 107.

Iris brown; bill and legs black.

[The Eastern Fiskal Shrike was seen on old thorn-bushes in Somaliland and is a bold fearless bird, very handsome by reason of the contrast of its black and pure white plumage. It is generally met with singly or in pairs, and may often be seen catching its prey on the wing, especially on the maritime plain, where it is common.—A. E. P.]

105. LANIUS ANTINORII.

Lanius antinorii Salvad.; Lort Phillips, Ibis, 1898, p. 404; Hawker, Ibis, 1899, p. 68; Grant, Ibis, 1901, p. 287.

a. ♂. Manda, Somaliland, 3rd April. No. 760.

Iris brown; bill and legs black.

[Antinori's Shrike was seen on the maritime plain, but was not so common as *L. humeralis*, which it resembles in its habits.—A. E. P.]

106. PRIONOPS CRISTATUS.

Prionops cristatus Rüpp. N.W. Vög. p. 30, pl. xii. fig. 2; Hawker, Ibis, 1899, p. 69.

Prionops poliocephalus Sharpe, Cat. B. Brit. Mus. iii. p. 321 (1877) (part.).

a, b. ♂ ♀. Hülül, S. Abyssinia, 3rd Dec. Nos. 161, 162.

c. ♀. Hoorsa, S. Abyssinia, 4th Dec. No. 180.

d. ♀. Arbawun, S. Abyssinia, 17th Dec. No. 246.

e, f. ♂ ♀. Moulou River, S. Abyssinia, 14th Mar. Nos. 678, 679.

Iris and eyelids yellow; bill black; legs orange-red.

The birds obtained by Mr. Pease are the true *P. cristatus* Rüpp. The broad white bar down the wing, formed by the median and greater coverts and the outer webs of the middle secondaries, which is so strongly marked in *P. poliocephalus*, is barely indicated by the narrow white margins to the outer webs of the secondaries. The specimens of this bird prove a welcome addition to our Collection.

[The Helmet-Shrike is a very striking bird and rather noisy. It is found in families which fly and alight together, and frequent bush-country and riverside jungles. —A. E. P.]

107. EUROCEPHALUS RUEPPELLI.

Eurocephalus rueppelli Bp.; Sharpe, P. Z. S. 1895, p. 480; Lort Phillips, Ibis, 1898, p. 406; Hawker, Ibis, 1899, p. 69.

a. ♂. Hülül, S. Abyssinia, 2nd Dec. No. 155.

Iris brown; bill black; legs dusky.

[Rüppell's Wood-Shrike was observed in small family-parties of from ten to twelve individuals. They were very noisy, behaving in a similar manner to the birds known as the "Seven Sisters."—A. E. P.]

108. BRADYORNIS PUMILUS.

Bradyornis pumilus, Sharpe, P. Z. S. 1895, p. 480; Lort Phillips, Ibis, 1898, p. 406.

a. ♂. Las Mân, Somaliland, 12th Nov. No. 27.
b. ♂. Hoorsa, S. Abyssinia, 4th Dec. No. 178.
c. ♂. Melkadegaga, S. Abyssinia, 22nd Feb. No. 552.
d. ♂. Gildessa, S. Abyssinia, 26th Mar. No. 731.

Iris brown; bill and legs black.

The series of the Grey Robin-Shrike now before us bears out the differences mentioned in the original description.

[This was a common bird in almost every group of bushes in Somaliland and was very tame.—A. E. P.]

109. MELÆNORNIS SCHISTACEA.

Melænornis schistacea Sharpe; Grant, Ibis, 1900, p. 151.

a. ♀. Anjerra, S. Abyssinia, 30th Nov. No. 137.
b. ♂. Hoorsa, S. Abyssinia, 4th Dec. No. 175.
c. ♀. Lake Zwai, S. Abyssinia, 5th Feb. No. 458.
d, e. ♂ ♀. Kora, S. Abyssinia, 10th Feb. No. 479, 480.

Iris brown; bill and legs black.

It is interesting to obtain additional examples of Donaldson-Smith's Cuckoo-Shrike, which is still a very scarce bird.

[This Cuckoo-Shrike was generally to be seen in pairs in very low bush, frequently descending to the ground in search of insects; though widely distributed it was nowhere common.—A. E. P.]

110. PHYLLOSCOPUS RUFUS.

Phylloscopus rufus (Bechst.); Grant, Ibis, 1900, p. 152.

a. ♂. Zaila, Somaliland, 5th Nov. No. 12.
b. ? Lake El Toki, S. Abyssinia, 28th Feb. No. 594.
c. ♀. Marko, S. Abyssinia, 17th Mar. No. 695.

Iris brown; bill and legs black.

The birds sent include examples of the larger dark-backed form (specimen *b*) and the smaller yellow-backed form (specimens *a*, *c*).

b. Wing 2·5 inches.
a. „ 2·2 „
c. „ 2·3 „

[The Chiffchaff was met with from the coast right up to the Hawash.—A. E. P.]

Special interest attaches to the different forms of the Chiffchaff and Willow-Wren. In both these species we find two rather well-marked forms—a larger darker-backed race and a smaller lighter-coloured race. Both forms of the Chiffchaff and Willow-Wren are picked up in numbers by the lighthouse-keepers on the Irish coast, but it has not been ascertained with certainty that they come in separate flocks or at different times of year; in fact, the evidence seems to point rather to the contrary.

Through the kindness of Mr. R. M. Barrington we have recently received specimens of both races of Willow-Wren, and have been enabled to measure a few skins and wings in his possession.

We take this opportunity of recording our notes:—

WILLOW-WRENS (*Phylloscopus trochilus*).

Large dark-backed form.

No sex given. Wing 2·8 inches (wings only sent). From S. Maidens Lighthouse, co. Antrim. 18/iv./93.

No sex given. Wing 2·75 inches (wings only sent). From Hook Tower. 24/iv./97.

No sex given. Wing 2·75 inches (skin), tail 2·1. From S. Maidens Lighthouse. 6/v./91.

♂ (certain). Wing 2·7 inches (skin), tail 2·0. From Tuskar Lighthouse, Co. Wexford. 19/iv./01.

Small yellow-backed form.

♂. Wing 2·2 inches (wings only sent). From Tuskar Lighthouse. 14/iv./98.

♂. Wing 2·45 inches (wings only sent). From Tuskar Lighthouse. 14/iv./98.

No sex given. Wing 2·35 inches (skin), tail 1·85. From Hook Tower. 29/iv./92.

♀ (certain). Wing 2·15 inches (skin), tail 1·75. From Tuskar Lighthouse. 19/iv./01.

111. SYLVIA ATRICAPILLA.

Sylvia atricapilla (Linn.); Grant, Ibis, 1900, p. 151.

a. ♂. Somadu, Somaliland, 31st Mar. No. 746.

Iris brown; bill black; legs slate-coloured.

[The only Blackcap which we saw was found on the maritime plain.—A. E. P.]

112. SYLVIA CURRUCA.

Sylvia curruca (Linn.); Seebohm, Cat. B. Brit. Mus. v. p. 16 (1881).

a. ♂. Guelan, S. Abyssinia, 25th Jan. No. 394.

b. ♂. Lake Zwai, Somaliland, 5th Feb. No. 462.

Iris brown; bill and legs black.

[The Lesser Whitethroat was found in thick thorn-bush. —A. E. P.]

113. SYLVIA CINEREA.

Sylvia cinerea (Bechst.); Lort Phillips, Ibis, 1898, p. 407.

a, b. ♀. Tadejemulka, S. Abyssinia, 4th Mar. Nos. 613, 614.

Iris, bill, and legs brown.

[The Common Whitethroat was seen only in this locality. —A. E. P.]

114. SYLVIA NISORIA.

Sylvia nisoria (Bechst.); Heugl. Orn. N.O.-Afr. i. p. 315

(1869); Seebohm, Cat. B. Brit. Mus. v. p. 6 (1881); Grant, Novit. Zool. vii. p. 252 (1900) [South Arabia].

a. ♂ imm. Tadejemulka, S. Abyssinia, 4th Mar. No. 612.

b. ♀ imm. Boosa, Somaliland, 28th Mar. No. 734.

c, d. ♂ ♀. Somadu, Somaliland, 31st Mar. Nos. 744, 745.

Iris bright yellow; bill black; legs grey.

The presence of the Barred Warbler in Southern Arabia was recently recorded in the paper referred to above. Heuglin has mentioned its occurrence in Nubia and North Sennar, but this is the first time that we have received specimens from N.E. Africa.

[The Barred Warbler has a wide range, but is very seldom seen.—A. E. P.]

115. SYLVIA FAMILIARIS.

Sylvia familiaris Ménétr.; Seebohm, Cat. B. Brit. Mus. v. p. 36 (1881).

Aedon familiaris Lort Phillips, Ibis, 1898, p. 406.

a. ♂. Hensa, Somaliland, 2nd April. No. 757.

Iris brown; bill dark brown; legs pale brown.

[The Rufous Warbler was only once seen, on the maritime plain.—A. E. P.]

116. ACROCEPHALUS PHRAGMITIS.

Acrocephalus phragmitis (Bechst.); Grant, Ibis, 1900, p. 151.

a. ♂. Lake Zwai, Somaliland, 5th Feb. No. 464.

b. ♀. Lake El Toki, S. Abyssinia, 27th Feb. No. 584.

Iris brown; bill and legs dusky.

[The Sedge-Warbler was found wherever there were water-reeds growing on the margins of the lakes; it was always seen on the upright stems.—A. E. P.]

117. LUSCINIOLA GRACILIROSTRIS.

Lusciniola gracilirostris (Hartl.); Seebohm, Cat. B. Brit. Mus. v. p. 122 (1881).

a. ♂. Lake Zwai, S. Abyssinia, 5th Feb. No. 461.

Iris brown; bill black; legs dark slate-coloured.

The occurrence of this South-African Grass-Warbler at Lake Zwai is of considerable interest. It was known to occur as far north as the Congo on the West Coast, but on the East the Transvaal was the most northern locality recorded.

[This species was seen among the tall reeds and papyrus on the margins of lakes, and has a sweet song.—A. E. P.]

118. HYPOLAIS PALLIDA.

Hypolais pallida (H. & E.); Lort Phillips, Ibis, 1898, p. 408.

a. ♂. Kassam River, S. Abyssinia, 22nd Dec. No. 284.

Iris brown; bill and legs dark brown.

[Wherever there were flat-topped mounds covered with trees we found the Olivaceous Tree-Warbler very common; it is almost always to be found among the highest twigs singly or in pairs.—A. E. P.]

119. PARISOMA BOEHMI.

Parisoma boehmi Reichenow; Sharpe, P. Z. S. 1895, p. 490; Hawker, Ibis, 1899, p. 74.

a. ♀. Dahol, Somaliland, 15th Nov. No. 55.

b. ♀. Dabas River, Somaliland, 29th Mar. No. 740.

Iris pale yellow; bill and legs dark horn-coloured or black.

[Boehm's Warbler was not often seen.—A. E. P.]

120. SYLVIELLA MICRURA.

Sylviella micrura (Rüpp.); Grant, Ibis, 1900, p. 154.

a. ♀. Hülül, S. Abyssinia, 1st Dec. No. 147.

b. ♀. Fullfully, S. Abyssinia, 5th Dec. No. 183.

c. ♀. Kassam R., S. Abyssinia, 22nd Dec. No. 290.

Iris brown; bill and legs dark brown.

Additional material shows how distinct this species is from *S. brachyura* (Lafr.).

[The Short-tailed Bush-Warbler was met with during the whole of our journey, creeping about in the Mimosa and thorn-trees.—A. E. P.]

121. DRYODROMUS RUFIFRONS.

Dryodromus rufifrons; Rüpp., Sharpe Cat. B. Brit. Mus. vii. p. 146 (1883).

Dryodromus smithi Sharpe, P. Z. S. 1895, p. 482; Lort Phillips, Ibis, 1898, p. 409; Hawker, Ibis, 1899, p. 70.

a, b. ♀. Aruweina, Somaliland, 14th Nov. Nos. 50 & 52.

c. ? Hoorsa, S. Abyssinia, 4th Dec. No. 181.

d. ♂. Filwa, S. Abyssinia, 8th Mar. No. 647.

Iris light brown; bill black; legs light brown or yellow-brown.

[The Rufous-fronted Grass-Warbler was found on the hotter and more sandy grounds, generally alone and near the ground.—A. E. P.]

122. EREMOMELA FLAVOCRISSALIS.

Eremomela flavocrissalis Sharpe, P. Z. S. 1895, p. 481; Lort Phillips, Ibis, 1898, p. 409; Hawker, Ibis, 1899, p. 70.

a. ♀. Hülül, S. Abyssinia, 1st Dec. No. 146.

b. Ad. Sequala, S. Abyssinia, 27th Jan. No. 407.

Iris brown; bill and legs black.

[The Yellow-vented Bush-Warbler which we obtained in Abyssinia has also been shot in Somaliland; it has, therefore, a wide range from the coast to the mountains.—A. E. P.]

123. CAMAROPTERA CHRYSOCNEMIS.

Orthotomus chrysocnemis Licht. Nomencl. Av. Berol. p. 33 (1854).

Syncopta tincta Cassin, P. Ac. Nat. Sci. Philad. vii. p. 325 (1856).

Camaroptera brevicaudata Sharpe, Cat. B. Brit. Mus. vii. p. 168 (1883) (part.); Lort Phillips, Ibis, 1898, p. 409; Grant, Ibis, 1900, p. 157.

a, b. ♂. Harrar, S. Abyssinia, 24th Nov. Nos. 105 & 106.

c. ♂. Hülül, S. Abyssinia, 2nd Dec. No. 159.

d. ♂. Hoorsa, S. Abyssinia, 4th Dec. No. 173.

e. ♀. Alaga, S. Abyssinia, 25th Feb. No. 573.

f. ♂. Marko, S. Abyssinia, 17th Mar. No. 694.

Iris light brown; bill black; legs light brown or yellow-brown.

Now that we have obtained, thanks to Mr. R. M. Hawker, a series of the true *Camaroptera brevicaudata* (Cretzschm.)

from Kordofan, it is at once apparent that two distinct forms have been united in the 'Catalogue of Birds' under that name. The true *C. brevicaudata*, which apparently ranges from Bogos Land to the White Nile, has the underparts mostly white. The present species, which is found in E. Abyssinia, Somaliland, and thence to W. Africa, has the underparts grey, only the middle of the lower breast and abdomen being white.

[We found the Abyssinian Green-backed Bush-Warbler very common all along the Harrar and Shoan escarpments and in the Hawash Valley.—A. E. P.]

124. CALAMONASTES SIMPLEX.

Calamonastes simplex (Cab.); Sharpe, P. Z. S. 1895, p. 482; Lort Phillips, Ibis, 1898, p. 410; Hawker, Ibis, 1899, p. 71.

a. ♂. Dahol, Somaliland, 15th Nov. No. 57.
b. ♂. Fullfully, S. Abyssinia, 5th Dec. No. 185.
c. ♂. Dalado, S. Abyssinia, 12th Dec. No. 231.
d. ♂. Moulou River, S. Abyssinia, 15th Mar. No. 685.

Iris brown; bill black; legs dark brown or black.

[The Brown Bush-Warbler was fairly common in the Danakil country in thorn-bushes.—A. E. P.]

125. PHYLLOLAIS HILDEGARDÆ.

Euprinodes hildegardæ Sharpe, Bull. B. O. C. x. p. xxviii (1900).

a. ♀. Hoorsa, S. Abyssinia, 4th Dec. No. 179.
b. ♂. Daira Aila, S. Abyssinia, 11th Dec. No. 224.
c. Ad. Choba, S. Abyssinia, 24th Dec. No. 302.
d. ♂. Lake Zwai, S. Abyssinia, 5th Feb. No. 463.

Iris brown; bill black, dark brown, dusky, or light brown; legs brown or dark brown.

Euprinodes hildegardæ Sharpe, from the Athi River, Massai Land, though very closely allied to *Phyllolais pulchella* Cretzschm., appears to be distinct, for the bill of the former is dark brown or brown, while that of the latter is yellow or yellowish horn-coloured; this difference is very apparent even in the dried skins, and cannot be accounted for by any seasonal change. In plumage the birds appear to be identical.

[Hinde's Bush-Warbler has a wide range through Abyssinia and Gallaland down to the coast.—A. E. P.]

126. PRINIA MURINA.

Prinia murina (Heugl.); Grant, Ibis, 1900, p. 158.

a, b. ♂. Adis Ababa, S. Abyssinia, 11th Jan. Nos. 368, 369.

Iris light brown; bill dark brown; legs brown.

[The Tawny-flanked Grass-Warbler continually worried us, for we always found it in low bush and tall grass, and were constantly led to believe that it was something else, so that great numbers perished in consequence.—A. E. P.]

127. BURNESIA GRACILIS.

Burnesia gracilis (Cretzschm.); Sharpe, Cat. B. Brit. Mus. vii. p. 210 (1883).

a, b, c. ♀. Zaila, Somaliland, 5th Nov. & 9th April. Nos. 11, 13, & 780.

Iris light hazel; bill black; legs yellow-brown.

[The Slender Grass-Warbler is common on the maritime plain.—A. E. P.]

128. CISTICOLA CISTICOLA.

Cisticola cisticola (Temm.); Sharpe, Cat. B. Brit. Mus. vii. p. 259 (1883).

a. ♂. Errer Gōta, S. Abyssinia, 6th Dec. No. 204.

Iris and bill dark brown; legs light brown.

The Common Fantail-Warbler, though known to occur throughout Africa, has not previously been recorded from Southern Abyssinia.

129. CISTICOLA LAVENDULÆ, sp. n.

Adult male and female. Most nearly allied to *C. hæsitata*, from Sokotra, which it resembles in general appearance; but the rump and upper tail-coverts are sandy buff, uniform with the back, and not rufous buff contrasting with it. In *C. hæsitata* the tail, viewed from above, has the dark subterminal bars well marked and sharply defined from the paler basal part of the feathers. In the present species the dark part of the tail-feathers is uniform black from the white tip to the base, and there is no differentiated subterminal black spot.

♂. Long. tot. 4·2 inches, exposed part of culmen 0·35, wing 2 0, tail 1·6, tarsus 0·8.

♀. Long. tot. 4·2 inches, exposed part of culmen 0·35, wing 2·0, tail 1·6, tarsus 0·75.

a, b. ♂ ♀. Aroharlaise, Somaliland, 3rd April. Nos. 764 & 765. [*Types of the species.*]

Iris brown; bill dark brown; legs pale brown.

[Miss Lavender Pease's Fantail-Warbler was only seen on the return journey across the maritime plain, when the grass was green after the rain; it rose sharply out of the grass and had a rapid up-and-down kind of flight. It was thinly scattered over many miles of plain.—A. E. P.]

130. CISTICOLA TERRESTRIS.

Cisticola terrestris (Smith); Grant, Ibis, 1900, p. 159.

a, b. ♂ ♀. Jeffi Dunsa, S. Abyssinia, 28th Dec. Nos. 323 & 326.

c. ♀. Adis Ababa, S. Abyssinia, 11th Jan. No. 367.

Iris light brown; bill dark brown or brown; legs light brown or light yellow.

The above specimens, shot in December and January, differ somewhat from typical South-African examples in having the edges to the feathers of the upper parts paler; the rump is rufous buff rather than rufous, and in this respect they approach *C. hindii.*

[The Terrestrial Fantail-Warbler was found on the same ground as the Yellow-throated Pipit (*Macronyx flavicollis*), always on the high plateau among the tall grass.—A. E. P.]

131. CISTICOLA CINEREOLA.

Cisticola cinereola Salvad.; Grant, Ibis, 1900, p. 159.

Cisticola somalica Sharpe, P. Z. S. 1895, p. 483.

a. ♂. Hoorsa, S. Abyssinia, 4th Dec. No. 177.

b. ♀. Filwa, S. Abyssinia, 8th Mar. No. 649.

Iris light brown; bill dusky brown; legs yellowish brown or light brown.

The pair of Grey Fantail-Warblers obtained by Mr. Pease shew conclusively that *C. somalica* Sharpe and *C. cinereola* Salvad. are respectively the male and female of the same species.

a. ♂. Wing 2·6 inches, tail 2·3.
b. ♀. Wing 2·15 inches, tail 1·95.

132. CISTICOLA ROBUSTA.

Cisticola robusta (Rüpp.); Salvad. Ann. Mus. Civ. Gen. xxi. p. 146 (1884); xxvi. p. 252 (1888).

Cisticola erythrogenys Grant (nec Rüpp.), Ibis, 1900, p. 160.

a. ♂. Adis Ababa, S. Abyssinia, 16th Jan. No. 377.

Iris brown; bill black; legs brown.

We have now no doubt that *C. erythrogenys* (Rüpp.) is a perfectly distinct species, and is not, as Dr. Sharpe supposed, founded on the female of *C. robusta* (Rüpp.). Rüppell distinctly says that the type of his *Drymoica erythrogenis* is an adult male. Both Dr. Finsch and Count Salvadori disagreed with Dr. Sharpe, and regarded *C. erythrogenys* as a distinct species; but Count Salvadori made the mistake of uniting *C. erythrogenys* with *C. marginalis* Heugl., which is a very different species from the White Nile and has the upper tail-coverts buff, devoid of black spots.

[The Great Abyssinian Fantail-Warbler was shot on the mountain-side, behind the British Compound; it was never seen below the Abyssinian plateau.—A. E. P.]

133. CISTICOLA ERYTHROGENYS.

Drymoica erythrogenis Rüpp. Syst. Uebers. p. 34, pl. 12 (1845).

Cisticola erythrogenys Salvad. Ann. Mus. Civ. Genov. xxi. p. 148 (1884) (nec syn.); xxvi. p. 253 (1888).

Cisticola lugubris Grant (nec Rüpp.), Ibis, 1900, p. 160.

a. ♀. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 328.

b, c. ♂ ♀. Adis Ababa, S. Abyssinia, 4th–6th Jan. Nos. 351 & 360.

Iris brown; bill black; legs black or light brown.

With the large amount of additional material now available, we have made a careful re-examination of *C. erythrogenys* and the allied species and have arrived at the following conclusions:—

1. *C. erythrogenys* (Rüpp.) is not the female of *C. robusta* (Rüpp.), but a perfectly distinct species: so far we agree with Count Salvadori.
2. *C. erythrogenys* (Rüpp.) is not synonymous with *C. marginalis* (Heugl.). In this we differ from Count Salvadori for the following reasons:—*C. marginalis* is found near the White Nile, and apparently does not occur in S. Abyssinia. It has the upper tail-coverts uniform buff, with very rarely any trace of dark shaft-spots on (one or two of) the feathers; while in *C. erythrogenys* the upper tail-coverts are *black, margined all round with rufous buff,* which gives them a *heavily spotted* appearance.

    Dr. Sharpe's key to the species of *Cisticola* (*cf.* Cat. B. Brit. Mus. vii. p. 237) leads one to suppose that *C. marginalis* comes under the heading "*h*^{5}. *Upper tail-coverts centred with black*"; but both Heuglin's original description and the plate (*cf.* Ibis, 1869, p. 94, pl. i. fig. 1) shew that the upper tail-coverts are uniform buff.
3. *C. erythrogenys* may always be distinguished from the allied *C. tinniens* from S. Africa by the black stripes on the head *commencing at the base of the bill,* whereas in *C. tinniens* the forehead is uniform rufous and the black stripes *commence just in front of the eye.*
4. Specimens of *C. erythrogenys* collected by Lord Lovat in S. Abyssinia were wrongly referred to *C. lugubris.*
5. From *C. chiniana* the present species may be distinguished by its smaller size, by the heavily striped black and rufous-buff plumage of the upper parts, and by the bright cinnamon-buff outer margin to the quills.

[We found the Rufous-cheeked Fantail-Warbler common on the rolling grass tablelands.—A. E. P.]

134. CISTICOLA CHINIANA.

Cisticola chiniana (Smith); Grant, Ibis, 1900, p. 161.

a. ♂. Harrar, S. Abyssinia, 22nd Nov. No. 94.
b. ♀. Anjerra, S. Abyssinia, 30th Nov. No. 139.
c. ♂. Hojojo, S. Abyssinia, 15th Dec. No. 241.
d. ♂. Katyinwaha, S. Abyssinia, 18th Dec. No. 252.
e. ♂. Hawash R., S. Abyssinia, 19th Dec. No. 263.

Iris light brown; bill black or dark brown; legs light brown.

Specimen *a*, sexed as a male (but no doubt a female, wing 2·2 inches), is in breeding-plumage, with the head and nape uniform rufous and the buff eyebrow-stripe well developed. This specimen differs from all the others in having the dark centres of the feathers of the back nearly obsolete. In this respect it is approached by a bird collected by Lord Lovat at Bourka, S. Abyssinia.

[The Larger Grey-backed Fantail-Warbler is widely distributed.—A. E. P.]

135. CISTICOLA ERYTHROPS.

Cisticola erythrops (Hartl.); Sharpe, Cat. B. Brit. Mus. vii. p. 250 (1883).

a, b. ♂. Lake Zwai, S. Abyssinia, 5th Feb. Nos. 454, 455.

Iris light brown; bill dark brown; legs pale brown.

The two examples of this rare Fantail-Warbler from Lake Zwai extend its known range a long way to the North.

[The Buff-breasted Fantail-Warbler was only seen at Lake Zwai. It is easily distinguished from other members of the family by its richly coloured breast.—A. E. P.]

136. GEOCICHLA SIMENSIS.

Geocichla simensis (Rüpp.); Grant, Ibis, 1900, p. 162.

a, b. ♂ ♀. Harramaier, S. Abyssinia, 28th Nov. Nos. 133, 134.
c. ♂. Adis Ababa, S. Abyssinia, 5th Jan. No. 357.
d. ♀. Kora, S. Abyssinia, 11th Feb. No. 489.
e. ♂. Jello, S. Abyssinia, 16th Feb. No. 513.

Iris brown; bill black, lower mandible yellow at base; legs dull brown.

The November birds are in fresh brilliant plumage; those shot in February are much paler.

[The Abyssinian Ground-Thrush was met with as soon as the high ground was reached. Its note has a resemblance to that of the British Song-Thrush, but there is no continuity of song. It was seen in open country, gardens, compounds, jowari-fields, &c.—A. E. P.]

137. GEOCICHLA PIAGGII.

Geocichla piaggii (Bouvier); Seebohm, Cat. B. Brit. Mus. v. p. 171, pl. xi. (1881).

a. ♀. Sequala, S. Abyssinia, 27th Jan. No. 408.

Iris brown; bill black; legs light dusky brown.

[The Central-African Ground-Thrush was only seen once, in a deep rocky ravine in dense cover.—A. E. P.]

138. TURDUS ABYSSINICUS.

Turdus abyssinicus Gm.; Grant, Ibis, 1900, p. 162.

a. ♂. Adis Ababa, S. Abyssinia, 10th Jan. No. 362.

Iris brown; bill and eyelids orange; legs orange.

[The Abyssinian Thrush was not often observed.—A. E. P.]

139. TURDUS PELIOS.

Turdus pelios Bonap.; Grant, Ibis, 1900, p. 163.

a. ♂. Lake Zwai, S. Abyssinia, 5th Feb. No. 456.

Iris brown; bill yellow; legs dusky slate-coloured.

[The Ethiopian Thrush was only seen in the neighbourhood of Lake Zwai.—A. E. P.]

140. MONTICOLA SAXATILIS.

Monticola saxatilis (Linn.); Grant, Ibis, 1900, p. 163; 1901, p. 288.

a. ♂ vix ad. Adis Ababa, S. Abyssinia, 11th Jan. No. 365.

Iris brown; bill and legs black.

[The Rock-Thrush is a common bird, found amongst rocks or trees.—A. E. P.]

141. MONTICOLA CYANUS.

Monticola cyanus (Linn.); Lort Phillips, Ibis, 1898, p. 411.

a. ♂. Akaki River, S. Abyssinia, 29th Dec. No. 337.

Iris brown; bill and legs black.

[The Blue Rock-Thrush was shot in a deep gorge among the cliffs above the river. Not seen again.—A. E. P.]

142. MONTICOLA RUFOCINEREUS.

Monticola rufocinereus (Rüpp.); Grant, Ibis, 1900, p. 163.

a. ♀. Dagu Delali, S. Abyssinia, 21st Nov. No. 86.

b. ♀. Harrar, S. Abyssinia, 24th Nov. No. 98.

c. ♀. Kora, S. Abyssinia, 11th Feb. No. 492.

Iris brown; bill and legs black.

The only female example in the British Museum Collection is a poor skin in very worn plumage. The fine specimens shot by Mr. Pease are therefore a welcome addition.

[The Abyssinian Rock-Thrush was common where there were ravines and washed-out rifts in deep earth and alluvial soil.—A. E. P.]

143. CYANECULA SUECICA.

Cyanecula suecica (Linn.); Grant, Ibis, 1900, p. 163.

a. ♂. Lake El Toki, S. Abyssinia, 1st Mar. No. 599.

Iris brown; bill and legs black.

This male is remarkable in that it entirely lacks the white spot on the throat, and in this respect differs from any specimen in the British Museum Collection.

[The Blue-throated Robin is a very shy bird, and was seen once or twice on the ground under low bushes.—A. E. P.]

144. ERITHACUS GUTTURALIS.

Erithacus gutturalis (Guérin); Seebohm, Cat. B. Brit. Mus. v. p. 304 (1881).

Irania gutturalis Lort Phillips, Ibis, 1898, p. 411.

a, b. ♂. Boosa, Somaliland, 28th Mar. Nos. 732, 733.

c. ♂. Somadu, Somaliland, 31st Mar. No. 743.

Iris brown; bill and legs black.

One of the males killed at Boosa, though apparently fully adult, has the breast and belly pale rufous buff. Seebohm states that this plumage is characteristic of *males of the year*, but we believe this statement to be open to question. In the British Museum there is one specimen with pale buff breast perfectly similar to the above bird, while a second has the throat of an intermediate tint, and it would seem that the colour of the under parts is subject to great individual variation and varies from pale rufous buff to bright chestnut. These differences are irrespective of locality.

[The White-throated Robin hawks from low bushes, after the manner of a Flycatcher. It was not a common species, being only twice seen by Mr. Harwood.—A. E. P.]

145. RUTICILLA RUFIVENTRIS.

Ruticilla rufiventris (Vieill.); Seebohm, Cat. B. Brit. Mus. v. p. 342 (1881).

Ruticilla semirufa Lort Phillips (nec H. & E.), Ibis, 1898, p. 412.

a. ♂. Dalado, S. Abyssinia, 13th Dec. No. 232.

Iris brown; bill and legs black.

The birds obtained by Mr. Lort Phillips in Somaliland have been wrongly referred to the Palestine Redstart (*R. semirufa*), which is a much smaller bird and has the under wing-coverts mostly black. Here, again, we find a common Indian species occurring in Somaliland.

[The Indian Redstart is found in rocky gorges and is not at all common.—A. E. P.]

146. MYRMECOCICHLA DUBIA.

Myrmecocichla dubia Weld-Blundell & Lovat; Grant, Ibis, 1900, p. 164.

a. ♂. Tadejemulka, S. Abyssinia, 5th Mar. No. 622.

Iris brown; bill and legs black.

A second example of the Abyssinian Mountain-Chat agrees perfectly with the type obtained by Lord Lovat.

[Not often seen.—A. E. P.]

147. SAXICOLA LEUCOMELA.

Saxicola leucomela (Pall.); Grant, Ibis, 1900, p. 165.

a, b. ♂ imm. Zaila, Somaliland, 5th Nov. Nos. 9, 10.

c. ♀. Hoorsa, S. Abyssinia, 4th Dec. No. 171.

d. ♀. Balchi, S. Abyssinia, 26th Dec. No. 310.

e. ♂ vix ad. Adis Ababa, S. Abyssinia, 10th Jan. No. 364.

f. [♂.] Tadejemulka, S. Abyssinia, 5th Mar. No. 623.
g. ♀. Filwa, S. Abyssinia, 8th Mar. No. 648.

Iris brown; bill and legs black.

Specimen *f* is the only male bird in fully adult breeding-plumage.

[The Siberian Pied Chat was found in great variety of plumage throughout the journey, from the sea to the highest plateau. It was the commonest of all the Chats.—A. E. P.]

Saxicola somalica Sharpe, the type of which was obtained by Dr. Donaldson-Smith, now proves to be an immature specimen of the rare *S. vittata* H. &. E., which breeds in the plains of N.W. Turkestan and Cashmere, and winters in N.W. Arabia and Bogos Land. This is another of the many instances of Indian species extending their range into Somaliland.

148. SAXICOLA ŒNANTHE.

Saxicola œnanthe (Linn.); Grant, Ibis, 1900, p. 165.

a. ♂. Myeesa River, S. Abyssinia, 14th Mar. No. 670.

Iris brown; bill and legs black.

[The Wheatear was only observed a few times, on the 14th of March, perching on stones.—A. E. P.]

149. SAXICOLA ISABELLINA.

Saxicola isabellina Cretzschm.; Grant, Ibis, 1900, p. 166; 1901, p. 288.

a. ♂. Somadu, Somaliland, 13th Nov. No. 37.
b. ♀. Harrar, S. Abyssinia, 24th Nov. No. 99.
c. ♀. Katyinwaha, S. Abyssinia, 18th Dec. No. 254.

Iris brown; bill and legs black.

	Wing. in.	Tarsus. in.
Specimen *a* (No. 37) is an unusually large bird ..	4·0	1·35
Specimen *b* (No. 99)	3·85	1·25
Specimen *c* (No. 254)	3·65	1·05

[The Isabelline Chat was widely distributed, but not found on the higher elevations above 6000 feet.—A. E. P.]

150. SAXICOLA DESERTI.

Saxicola deserti Temm.; Seebohm, Cat. B. Brit. Mus. v. p. 383 (1881); Hawker, Ibis, 1899, p. 72.

a. ♂ imm. Zaila, Somaliland, 7th Nov. No. 17.
b. ♂. Manda, Somaliland, 9th Nov. No. 25.

Iris brown; bill and legs black.

Mr. Hawker found this species numerous in Somaliland.

[The Desert-Chat was only seen in Somaliland.—A. E. P.]

151. SAXICOLA AURITA.

Saxicola aurita Temm.; Seebohm, Cat. B. Brit. Mus. v. p. 394 (1881).

a. ♂. Adis Ababa, S. Abyssinia, 16th Jan. No. 379.

Iris brown; bill and legs black.

An adult assuming full breeding-plumage. This is the first time that this species has been recorded from Abyssinia.

[The Black-eared Chat was shot on a bush outside the British Residency Compound.—A. E. P.]

152. PINAROCHROA SORDIDA.

Pinarochroa sordida (Rüpp.); Grant, Ibis, 1900, p. 167.

a. Ad. Adis Ababa, S. Abyssinia, 15th Jan. No. 373.

Iris brown; bill and legs black.

[The Rock-Chat frequents the rocks on the high plateau.—A. E. P.]

153. PRATINCOLA MAURA.

Pratincola maura (Pall.); Grant, Ibis, 1900, p. 167.

a. ♂. Errer Gōta, S. Abyssinia, 8th Dec. No. 210.
b, c. ♀. Adis Ababa, S. Abyssinia, 5th & 11th Jan. Nos. 354, 366.
d. ♀. Akaki R., S. Abyssinia, 24th Jan. No. 386.
e. ♂. Guelan, S. Abyssinia, 25th Jan. No. 393.
f. ♂. Melkadegaga, S. Abyssinia, 20th Feb. No. 549.

Iris brown; bill and legs black.

The males have the basal quarter or third of the outer tail-feathers white, and approach typical *P. hemprichi*. It seems to us very doubtful if the latter form can be retained as distinct, for the proportion of white varies strikingly in different individuals, some Indian examples of *P. maura* showing a considerable amount of it.

Specimen *c*, an adult female in somewhat worn plumage, has the longer upper tail-coverts spotted with black, and in this respect approaches *P. rubicola.*

[The Indian Stone-Chat was found commonly among the coarse and rank herbage and dead thorns surrounding deserted villages and zaribas.—A. E. P.]

154. PRATINCOLA ALBOFASCIATA.

Pratincola albofasciata (Rüpp.); Grant, Ibis, 1900, p. 168.

a–c. ♂. Adis Ababa, S. Abyssinia, 3rd–16th Jan. Nos. 348, 363, & 378.

Iris brown; bill and legs black.

Three males in fully adult black-and-white plumage. Specimen *b* (No. 363) still shows traces of the rufous edging to the feathers of the back.

[The Black-and-White Stone-Chat was almost invariably seen amongst low bush on the mountain- and hill-sides.—A. E. P.]

155. COSSYPHA SEMIRUFA.

Cossypha semirufa (Rüpp.); Grant, Ibis, 1900, p. 169.

a. ♀. Dagu Delali, S. Abyssinia, 21st Nov. No. 84.

b. ♀. Lake Zwai, S. Abyssinia, 5th Feb. No. 459.

Iris brown; bill and legs black.

[The Abyssinian Robin-Thrush was often found in dense bush or under creeper-covered earth-banks.—A. E. P.]

156. THAMNOLÆA ALBOSCAPULATA.

Thamnolæa alboscapulata (Rüpp.); Grant, Ibis, 1900, p. 169.

a. ♂. Balawa, S. Abyssinia, 20th Nov. No. 77.

b. ♀. Dagu Delali, S. Abyssinia, 21st Nov. No. 85.

c, d. ♂ ♀. Akaki, S. Abyssinia, 29th & 30th Dec. Nos, 339, 341.

Iris brown; bill and legs black.

[The Abyssinian White-shouldered Robin was seen breeding in overhanging banks and rocky crevices in small colonies of from ten to twenty in number.—A. E. P.]

157. ERYTHROPYGIA LEUCOPTERA.

Erythropygia leucoptera (Rüpp.); Grant, Ibis, 1900, p. 170.

a. ♂. Dahol, Somaliland, 15th Nov. No. 56.

b, c. ♂ ♀. Hülül, S. Abyssinia, 1st & 2nd Dec. Nos. 148, 158.

d. ♀. Hawash R., S. Abyssinia, 19th Dec. No. 261.

e. ♂ juv. Filwa, S. Abyssinia, 8th Mar. No. 646.

f. ♀. Moulou R., S. Abyssinia, 15th Mar. No. 689.

g. ♀. Daira Aila, S. Abyssinia, 18th Mar. No. 697.

Iris brown; bill black; legs dusky.

[The Abyssinian Chat-Thrush is a shy bird; when disturbed it dives quickly into the bottom of the nearest bush.—A. E. P.]

158. CERCOTRICHAS PODOBE.

Cercotrichas podobe (Müll.); Sharpe, Cat. B. Brit. Mus. vii. p. 83 (1883).

a. ♂. Aruweina, Somaliland, 14th Nov. No. 45.

Iris brown; bill and legs black.

[The Black Bush-Robin was found in thick cover on the Somali tugs (watercourses).—A. E. P.]

159. ARGYA RUBIGINOSA.

Argya rubiginosa (Rüpp.); Sharpe, P. Z. S. 1895, p. 487.

a. ♂. Gildessa, S. Abyssinia, 19th Nov. No. 71.

b. ♂. Moulou R., S. Abyssinia, 14th Mar. No. 677.

Iris brown; bill and legs dusky brown.

[The Rufous-breasted Babbling-Thrush was almost always seen in low scrub, seldom in higher bush, and invariably in scattered companies.—A. E. P.]

The two specimens obtained by Mr. Pease are no doubt referable to the true *A. rubiginosa* (Rüpp.), the wing measuring 3·4 inches in both birds. Dr. Sharpe, in his paper on Dr. Donaldson-Smith's collection (P. Z. S. 1895, p. 488), records a male from Shebeli with the large wing-measurement of 3·8 inches. He then goes on to shew how this bird differs from *A. rufula* Heugl. (=*A. rufescens* Heugl., *olim*), the form found in Equatorial Africa. The birds collected by Mr. Pease are, however, absolutely identical with typical specimens of *A. rufula* obtained by Emin at Lado, agreeing exactly both in plumage and size.

The bird from Shebeli is apparently a distinct form; it is much larger than *A. rubiginosa*, having a wing of 3·8 inches; it has the dark grey on the forehead extending to beyond the line of the eyes, and the hind-neck and mantle dark brown, with dark shaft-lines.

We propose to call this bird

ARGYA SHARPII, sp. n.

Argya rubiginosa Sharpe (nec Rüpp.), P. Z. S. 1895, p. 488 [Shebeli].

160. CRATEROPUS SMITHI.

Crateropus smithi Sharpe; Grant, Ibis, 1900, p. 170; 1901, p. 288.

a. ♀. Dagu Delali, S. Abyssinia, 21st Nov. No. 83.
b. ♂. Arbawun, S. Abyssinia, 17th Dec. No. 247.

Iris red; bill black; legs light slate-coloured.

[Donaldson-Smith's Babbling-Thrush was widely distributed and always seen in large family-parties.—A. E. P.]

161. PYCNONOTUS ARSINOE.

Pycnonotus arsinoe (H. & E.); Grant, Ibis, 1900, p. 171.

a. ♀. Somadu, Somaliland, 13th Nov. No. 42.
b. ♀. Harrar, S. Abyssinia, 24th Nov. No. 96.
c, d. ♂. Roguecha, S. Abyssinia, 15th Feb. Nos. 503, 504.
e. ♂. Moulou R., S. Abyssinia, 15th Mar. No. 690.

Iris brown; bill and legs black.

[The White-vented Bulbul has a sweet song, and is to be found everywhere.—A. E. P.]

162. BATIS ORIENTALIS.

Pachyprora puella Sharpe (nec Reichenow), P. Z. S. 1895, p. 489.

Pachyprora orientalis (Heugl.); Lort Phillips, Ibis, 1898, p. 414; Hawker, Ibis, 1899, p. 74.

Pachyprora bella Elliot, Field Columb. Mus. i. no. 2, p. 47 (1897); Hawker, Ibis, 1899, p. 73.

Batis orientalis (Heugl.); Grant, Ibis, 1900, p. 172.

a. ♂. Gildessa, S. Abyssinia, 19th Nov. No. 76.

b. ♂. Hülül, S. Abyssinia, 1st Dec. No. 142.

c. ♂. Errer Gōta, S. Abyssinia, 6th Dec. No. 203.

d. ♀. Daira Aila, S. Abyssinia, 10th Dec. No. 217.

e, f. ♂ ♀. Filwa, S. Abyssinia, 20th Dec. Nos. 273, 274.

g. ♂. Ounji, S. Abyssinia, 19th Feb. No. 544.

h. ♂. Daira Aila, S. Abyssinia, 18th Mar. No. 701.

Iris yellow; bill and legs black.

The presence or absence of a distinct white superciliary band encircling the crown does not appear to be a character of importance, and we have very little doubt that the birds referred to under the names quoted above all belong to the same species.

Elliot, in describing *P. bella,* has compared it with *B. minulla,* a species to which it is little akin, and consequently it appears to be very distinct, though really synonymous with *B. orientalis.*

The true *P. puella* Reichenow is quite a different species, most nearly allied to *B. molitor* (H. & K.), as may be seen by the chestnut marking on the throat of the female.

Specimen *g* has the crown of the head quite black, in specimen *e* it is grey; the other males are intermediate between the two. In specimen *g* the white eyebrow-stripe completely encircles the crown, and in *a,* though the crown is now slightly imperfect, the superciliary stripe appears to have been very similar. In the rest of the males the superciliary stripe is but faintly indicated beyond the eye.

[The Abyssinian White-flanked Flycatcher is always seen industriously searching the larger trees for food.—A. E. P.]

163. TERPSIPHONE CRISTATA.

Terpsiphone cristata (Gmel.); Grant, Ibis, 1900, p. 174; 1901, p. 288.

a. ♂ imm. Lake Zwai, S. Abyssinia, 5th Feb. No. 453.

Iris brown; eyelids blue; bill and legs blue-slate-coloured.

[The shrill call of the Abyssinian Paradise-Flycatcher is always to be heard wherever there are high trees near water, though it is necessary to be in hiding to observe this bird, as it is very shy.—A. E. P.]

164. COTILE MINOR.

Cotile minor Cab.; Sharpe & Wyatt, Monogr. Hirund. i. p. 77, pl. xii. (1887).

a. ♂. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 324.
b. ♂. Adis Ababa, S. Abyssinia, 15th Jan. No. 375.

Iris brown; bill and legs black.

Soudan Sand-Martin.

165. HIRUNDO RUSTICA.

Hirundo rustica Linn.; Grant, Ibis, 1900, p. 175.

a. ♀. Lake Ailan, S. Abyssinia, 3rd Feb. No. 444.

Iris brown; bill and legs black.

[The Common Swallow was always to be seen on the high grounds of Abyssinia.—A. E. P.]

166. HIRUNDO SMITHI.

Hirundo smithi Leach; Grant, Ibis, 1900, p. 176.

a, b. ♂ ♀. Kora, S. Abyssinia, 10th Feb. Nos. 477, 478.

Iris brown; bill and legs black.

As we have already observed elsewhere, the filiform tips of the outer tail-feathers are much shorter in African than in Indian examples.

[The Wire-tailed Swallow was generally seen skimming over the waters of the larger rivers and was frequently observed resting on the rocks in the water.—A. E. P.]

167. HIRUNDO PUELLA.

Hirundo puella Temm. & Schl.; Grant, Ibis, 1900, p. 177.

a. ♀. Katyinwaha, S. Abyssinia, 18th Dec. No. 251.
b. ♂. Arbawun, S. Abyssinia, 10th Mar. No. 658.

Iris brown; bill and legs black.

[The Smaller Stripe-breasted Swallow was very local, and was never observed to join flocks of other members of the same family. It was generally seen flying high over water.—A. E. P.]

168. HIRUNDO MELANOCRISSA.

Hirundo melanocrissa (Rüpp.); Grant, Ibis, 1900, p. 177.

a. ♂. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 325.
b, c. ♂ ♀ imm. Adis Ababa, S. Abyssinia, 6th Jan. Nos. 358, 359.

d, e. ♀ imm. Kora, S. Abyssinia, 10th Feb. Nos. 484. 485.

Iris brown; bill and legs black.

Specimen *a*, the only fully adult bird, has the wing 5·1 inches; other adults in the collection have the wing 5·2 inches. Sharpe and Wyatt (Monogr. Hirund. i. pp. 210, 211) give the wing-measurements as not exceeding 4·7 in. Younger birds differ from the adult in having the general colour of the upper parts steel-blue instead of purplish blue, the innermost secondaries tipped with white, and the under parts washed with a stronger shade of rufous. The measurements are, moreover, much smaller, the wing varying from 4·3 to 4·7 inches and the tail from 3·6 to 3·8 inches. In the adult the outer tail-feathers are longer and more pointed.

[The Abyssinian Mosque-Swallow is by no means a swift-flying bird; it is generally seen in small companies of three or four, and frequently perches.—A. E. P.]

169. PSALIDOPROCNE ANTINORII.

Psalidoprocne antinorii Salvad.; Grant, Ibis, 1900, p. 177.

a, b. ♂. Kora, S. Abyssinia, 10th Feb. Nos. 475, 476.

Iris brown; bill and legs black.

Count Salvadori has very kindly examined these two specimens for us and compared them with the types of Antinori's Rough-winged Swallow (*P. antinorii*) in the Turin Museum. He finds that they agree exactly. The only complete example in the British Museum Collection had at one time been in spirits, which have entirely destroyed the fine purplish gloss on the head and upper parts, so conspicuous in the fresh specimens now before us.

170. MESOPICUS SPODOCEPHALUS.

Mesopicus spodocephalus (Bonap.); Grant, Ibis, 1900, p. 304.

a. ♂. Hülül, S. Abyssinia, 1st Dec. No. 145.

Iris brown; bill black; legs dark slate-coloured.

[The Blood-breasted Woodpecker was only seen once, but it is by no means uncommon in the Kuni Woods.—A. E. P.]

171. CAMPOTHERA NUBICA.

Campothera nubica (Gmel.); Grant, Ibis, 1900, p. 304; 1901, p. 288.

a. ♂. Somadu, Somaliland, 13th Nov. No. 39.

b, *c*. ♂ imm. et ♀. Gildessa, S. Abyssinia, 19th Nov. Nos. 72, 73.

d. ♀. Hülül, S. Abyssinia, 2nd Dec. No. 156.

e. ♀. Kassam River, S. Abyssinia, 22nd Dec. No. 288.

Iris red; bill and legs dark slate-coloured.

[The Nubian Woodpecker was heard and seen throughout our journey, except on the high plateau.—A. E. P.]

172. DENDROPICUS HEMPRICHI.

Dendropicus hemprichi (Ehr.); Grant, Ibis, 1900, p. 305; 1901, p. 288.

a. ♂. Hülül, S. Abyssinia, 3rd Dec. No. 163.

b. ♀. Fullfully, S. Abyssinia, 5th Nov. No. 184.

c. ♀. Kassam R., S. Abyssinia, 22nd Dec. No. 289.

Iris brown; bill and legs dark slate-coloured.

[Hemprich's Woodpecker was frequently seen on the outside of the Mimosa-trees among the very small twigs, catching insects on the leaves and flowers.—A. E. P.]

173. THRIPIAS SCHOENSIS.

Thripias schoensis (Rüpp.); Grant, Ibis, 1900, p. 305; 1901, p. 288.

a. ♀. Kassam R., S. Abyssinia, 22nd Dec. No. 282.

b. ♂. Jello, S. Abyssinia, 16th Feb. No. 517.

c. ♂. Moulou R., S. Abyssinia, 11th Mar. No. 680.

Iris red; bill and legs dark slate-coloured.

[The Shoan Bearded Woodpecker is to be found whereever there are large trees.—A. E. P.]

174. IŸNX ÆQUATORIALIS.

Iÿnx æquatorialis Rüpp.; Grant, Ibis, 1900, p. 306.

a. ♂. Lake Zwai, S. Abyssinia, 5th Feb. No. 457.

Iris brown; bill light slate-coloured; legs brown.

[The Chestnut-breasted Wryneck was only once met with, in well-wooded country.—A. E. P.]

175. INDICATOR INDICATOR.

Indicator sparmanni Steph.; Salvad. Ann. Mus. Civ. Genov. xxi. p. 90 (1884).

Indicator indicator (Gmel.); Shelley, Cat. B. Brit. Mus. xix. p. 5 (1891); Sharpe, P. Z. S. 1895, p. 492.

a. ♂. Roguecha, S. Abyssinia, 15th Feb. No. 508.

Iris brown; bill pink; legs black.

[Single specimens of the Striped-winged Honey-guide were often seen in the Hawash Valley; on one occasion I watched one drumming on a tree like a Woodpecker, and, having shot it, I found the crop contained small insects, such as ants, &c.—A. E. P.]

176. INDICATOR MAJOR.

Indicator major Steph.; Shelley, Cat. B. Brit. Mus. xix. p. 6 (1891); Grant, Ibis, 1901, p. 289.

a. ♀. Hojojo, S. Abyssinia, 15th Dec. No. 242.
b. ♂. Bogra, S. Abyssinia, 1st Feb. No. 437.
c. ♂. Walda, S. Abyssinia, 24th Feb. No. 563.

Iris brown; bill black or dark brown; legs dark black or slate-coloured.

The Greater Honey-guide is represented in the present collection by three fully adult birds.

177. PRODOTISCUS PEASII. (Plate XIII.)

Prodotiscus peasei Grant, Bull. B. O. C. xi. p. 67 (1901).

a. ♂. Ounji, S. Abyssinia, 19th Feb. No. 540. [*Type of the species.*]

Iris brown; bill black; legs dark grey.

Adult male. Very nearly allied to *P. regulus* from S.E. Africa, but at once distinguished by having only a narrow streak of white on the outer tail-feathers, on the middle of the inner web next to the shaft; the middle tail-feathers, moreover, are browner and less black.

[Pease's White-tufted Honey-guide was only once seen, in very dense thick thorn-jungle.—A. E. P.]

178. MELANOBUCCO ABYSSINICUS.

Melanobucco abyssinicus (Lath.); Grant, Ibis, 1900, p. 307; 1901, p. 289.

a. ♀. Hoorsa, S. Abyssinia, 4th Dec. No. 176.

b. ♂. Katyinwaha, S. Abyssinia, 18th Dec. No. 256.

c, d. ♂. Roguecha, S. Abyssinia, 15th Feb. Nos. 510, 511.

e. ♀. Fullfully, S. Abyssinia, 21st Mar. No. 713.

Iris brown; bill and legs black.

[The Abyssinian Red-faced Barbet frequented the larger trees, often sitting on the topmost twigs, where it was very conspicuous.—A. E. P.]

179. TRICHOLÆMA MELANOCEPHALUM.

Tricholæma melanocephalum (Cretzschm.); Grant, Ibis, 1900, p. 308.

a. ♀. Somadu, Somaliland, 13th Nov. No. 41.

b. ♂. Choba, S. Abyssinia, 24th Dec. No. 307.

c. ♂. Somadu, Somaliland, 31st Mar. No. 742.

Iris brown; bill and legs black.

The Abyssinian Black-headed Barbet has not previously been received from Somaliland.

180. TRICHOLÆMA DIADEMATUM.

Tricholæma diadematum (Heugl.); Shelley, Cat. B. Brit. Mus. xix. p. 33 (1891; Grant, Ibis, 1901, p. 289.

a. ♂. Kassam River, S. Abyssinia, 22nd Dec. No. 286.

b. ♂. Jello, S. Abyssinia, 16th Feb. No. 514.

Iris brown; bill black; legs dark slate-coloured.

The Crowned Barbet was first met with in Shoa by Mr. J. J. Harrison. The examples in the present collection were procured in the same locality.

181. BARBATULA MINUTA.

Barbatula minuta Bonap.; Grant, Ibis, 1900, p. 308.

a. ♀. Bogra, S. Abyssinia, 1st Feb. No. 438.

b. ♀. Lake Zwai, S. Abyssinia, 4th Feb. No. 450.

Iris brown; bill black; legs dark slate-coloured.

[The Dwarf Barbet is a very active bird and has a powerful and musical voice.—A. E. P.]

182. TRACHYPHONUS MARGARITATUS.

Trachyphonus margaritatus (Rüpp.); Grant, Ibis, 1900, p. 309; 1901, p. 289.

a, b. ♀. Gildessa, S. Abyssinia, 19th Nov. Nos. 69, 70.

c, d. ♀. Hülül, S. Abyssinia, 2nd Dec. Nos. 151, 152.

e, f. ♂. Errer Gōta, S. Abyssinia., 6th Dec. Nos. 198, 199.

g. ♀. Ounji, S. Abyssinia, 19th Feb. No. 541.

h. ♂. Errer Gōta, S. Abyssinia, 20th Mar. No. 707.

Iris brown; bill red-brown; legs dark slate-coloured.

[The Pearl-spotted Barbet was found in all the country similar to Somaliland, generally in pairs.—A. E. P.]

183. TURACUS LEUCOTIS.

Turacus leucotis (Rüpp.); Shelley, Cat. B. Brit. Mus. xix. p. 436 (1891).

a. ♂. Bogra, S. Abyssinia, 31st Jan. No. 431.

b. ♂. Daba, S. Abyssinia, 7th Feb. No. 471.

Iris brown; bill and eyelids red; legs black.

[The White-eared Turacou was found only in very high trees on the Hawash and Meki River banks.—A. E. P.]

184. GYMNOSCHIZORHIS PERSONATA.

Gymnoschizorhis personata (Rüpp.); Shelley, Cat. B. Brit. Mus. xix. p. 455 (1891); Grant, Ibis, 1901, p. 289.

a. ♀. Quala, S. Abyssinia, 30th Jan. No. 430.

b. ♀. Roguecha, S. Abyssinia, 14th Feb. No. 502.

Iris brown; bill and face black; legs black.

[The Masked Turacou was very local, but decidedly plentiful at some of our camps on the Hawash.—A. E. P.]

185. SCHIZORHIS LEUCOGASTER.

Schizorhis leucogaster (Rüpp.); Grant, Ibis, 1900, p. 309; 1901, p. 289.

a. ♀. Aruweina, S. Abyssinia, 14th Nov. No. 53.

Iris brown; bill pale green; legs black.

[The White-bellied Plantain-eater was very common throughout the Somali forests and those of the Hawash Valley. It sits among the higher branches of the trees or moves about their tops uttering a loud noise, a sort of combination of a "caw" and a "quack."—A. E. P.]

186. CENTROPUS SUPERCILIOSUS.

Centropus superciliosus (H. & E.); Grant, Ibis, 1900, p. 310; 1901, p. 289.

a. ♀. Dalado, S. Abyssinia, 14th Dec. No. 239.
b. ♂. Tadejemulka, S. Abyssinia, 5th Mar. No. 618.
c. ♀. Moulou River, S. Abyssinia, 15th Mar. No. 681.
d. ♀. Hoorsa, S. Abyssinia, 22nd Mar. No. 719.

Iris red; bill black; legs slate-blue.

[The White-eyebrowed Lark-heeled Cuckoo was very common, and frequented the dense reedy and jungly edges of lakes and rivers. The note sounds like water poured out of a narrow-necked bottle.—A. E. P.]

187. COLIUS LEUCOTIS.

Colius leucotis (Rüpp.); Grant, Ibis, 1900, p. 310; 1901, p. 289.

a. ♂. Harrar, S. Abyssinia, 24th Nov. No. 102.

Iris brown; bill dark slate-coloured, light on the base of the culmen; legs red.

[The White-eared Coly was very common and invariably to be seen in large companies of individuals flying one after another from bush to bush, the last leaving with apparent reluctance.—A. E. P.]

188. COLIUS MACRURUS.

Colius macrurus (Linn.); Sharpe, Cat. B. Brit. Mus. xvii. p. 345 (1892); id. P. Z. S. 1895, p. 502; Hawker, Ibis, 1899, p. 77; Grant, Ibis, 1901, p. 289.

a. ♂. Kassam River, S. Abyssinia, 21st Dec. No. 276.

Iris brown; naked skin round eye dark red; bill red at base, black at the tip; legs dull red.

[The Blue-naped Coly was not nearly so numerous as *C. leucotis*; it is a stronger bird on the wing.—A. E. P.]

189. CYPSELUS MELBA.

Micropus melba (Linn.); Hartert, Cat. B. Brit. Mus. xvi. p. 438 (1892).

a. ♂. Aila, S. Abyssinia, 3rd Feb. No. 439.

Iris brown; bill and legs black.

Cypselus melba, subspecies *africana* (Temm.), which has been resuscitated by Mr. Hartert ('Catalogue of Birds,' p. 440), appears to us to be untenable, none of the characters put forward being constant. The bird shot by Mr. Pease has the broader dark pectoral band, but the under parts are pure white without any trace of dark shaft-lines. The wing measures 8·3 inches.

[The Great White-bellied Swift was seen on one occasion only, after a thunderstorm. It was in company with *C. apus*, *C. æquatorialis*, and several other species, including Hawks and Kites, all preying on a large flight of clear-winged flies; there must have been many thousands of birds on the wing, but there were very few of this species (*C. melba*).—A. E. P.]

190. CYPSELUS ÆQUATORIALIS.

Cypselus æquatorialis Müll.; Salvad. Ann. Mus. Civ. Genov. xxvi. p. 227 (1888).

Micropus æquatorialis (Müll.); Hartert, Cat. B. Brit. Mus. xvi. p. 441 (1892).

Cypselus alfredi Shelley, Birds Afr. ii. p. 345 (1900).

a, b. ♂ ♀. Aila, S. Abyssinia, 3rd Feb. Nos. 440, 441.

Iris brown; bill and legs black.

The measurements of these two specimens are somewhat greater than those given in the 'Catalogue of Birds':—

♂. (No. 441.) Wing 8·1, tail 3·6 inches.

♀. (No. 440.) Wing 8·1, tail 3·75 inches.

There is no doubt that *C. alfredi* Shelley is founded on greasy examples of this species.

[The Great Equatorial Swift was seen only on the same occasion that *C. melba* was observed, when it appeared to me to be certainly the most rapid of all the Swifts on the wing.—A. E. P.]

191. CYPSELUS APUS.

Micropus apus (Linn.); Hartert, Cat. B. Brit. Mus. xvi. p. 442 (1892).

a, b. ♂ ♀. Aila, S. Abyssinia, 3rd Feb. Nos. 442, 443.

Iris brown; bill and legs black.

192. CYPSELUS AFFINIS.

Micropus affinis (Hardw.); Hartert, Cat. B. Brit. Mus. xvi. p. 453 (1892).

a. ♀. Tadejemulka, S. Abyssinia, 2nd Mar. No. 603.

Iris brown; bill and legs black.

[The White-rumped Swifts were seen leaving their nests, which were placed in the crevices of a high rocky cliff over a river.—A. E. P.]

193. CAPRIMULGUS FOSSII.

Caprimulgus fossii Hartert, Cat. B. Brit. Mus. xvi. p. 551 (1892).

a. ♀. Lake Zwai, S. Abyssinia, 4th Feb. No. 448.

b. ♂. Melkadegaga, S. Abyssinia, 22nd Feb. No. 554.

c. ♂. Alaga, S. Abyssinia, 25th Feb. No. 572.

Iris, bill, and legs dark brown.

The occurrence of the Mozambique Nightjar in Abyssinia is worthy of note, as, though widely distributed in Eastern and Western Africa, it has never yet been found north of lat. 3° N. The specimens belong to typical *C. fossii*, as distinct from *C. clarus* Reichenow.

194. MELITTOPHAGUS SHARPII.

Melittophagus sharpii Hartert; Grant, Ibis, 1900, p. 313.

a, b, c. ♂ ♀. Fullfully, S Abyssinia, 5th Dec. Nos. 186, 187, 192.

d, e. ♂. Errer Gōta, S. Abyssinia, 6th & 9th Dec. Nos. 193 & 211.

f. ♂. Choba, S. Abyssinia, 24th Dec. No. 305.

g. Lake El Toki, S. Abyssinia, 28th Feb. No. 595.

Iris red; bill and feet black.

[Sharpe's Bee-eater was very common in all the hot countries; it was perhaps most numerous in the aloes and on the borders of the tugs of Somaliland.—A. E. P.]

195. MELITTOPHAGUS LAFRESNAYI.

Melittophagus lafresnayi (Guérin); Grant, Ibis, 1900, p. 313.

a, b. ♂. Balchi, S. Abyssinia, 26th Dec. Nos. 313, 314.

c. ♀. Kora, S. Abyssinia, 11th Feb. No. 490.

d. ♂. Alaga, S. Abyssinia, 24th Feb. No. 564.

Iris red; bill and legs black.

[Lafresnaye's Bee-eater was not nearly so common as *M. sharpii* and favoured the higher altitudes. It was not seen in Somaliland.—A. E. P.]

196. MEROPS APIASTER.

Merops apiaster (Linn.); Grant, Ibis, 1900, p. 314.

a, b. ♀. Goraboutha, S. Abyssinia, 17th Feb. Nos. 525, 526.

Iris red-brown; bill and legs black.

[The Common Bee-eater was not so numerous as *M. nubicus*. It was generally found in company with the latter.—A. E. P.]

197. MEROPS NUBICUS.

Merops nubicus Gmel.; Grant, Ibis, 1900, p. 314; 1901, p. 290.

a, b. ♂. Errer Gōta, S. Abyssinia, 8th Dec. Nos. 208, 209.

c–e. ♂. Goraboutha, S. Abyssinia, 17th Feb. Nos. 527, 530, 531.

f, g. ♂ ♀. Khaldina, S. Abyssinia, 18th Feb. Nos. 536, 537.

h–q. ♂ ♀. Filwa, S. Abyssinia, 8th Mar. Nos. 636–644.

Iris red; bill and legs black.

[Wherever we crossed wide stretches of marshy ground, or camped near the marshy edges of rivers, we saw the Crimson-breasted Bee-eaters; sometimes they were in very great numbers. At times they might be seen on the ground, at times following flights of insects and occasionally perching on trees.—A. E. P.]

198. UPUPA EPOPS.

Upupa epops Linn.; Grant, Ibis, 1900, p. 314; 1901, p. 290.

a. ♂. Owaramulka, S. Abyssinia, 7th Mar. No. 632.

b. ♀. Errer Gōta, S. Abyssinia, 20th Mar. No. 710.

Iris brown; bill dark brown or dusky black; legs brown or dusky black.

[The Hoopoe was very common, half a dozen being often seen together. We did not distinguish between it and *U. intermedia.*—A. E. P.]

199. UPUPA INTERMEDIA, subsp. n.

Adult male. Closely resembles *U. somalensis* Salvin, but there is a wide black band across the white basal half of the innermost secondaries. In this respect, as well as in the long slender bill, it resembles *U. indica* Reichenb. Iris brown; bill dark brown; legs dusky.

Total length ca. 10·5 inches, culmen 2·05, wing 5·6, tail 4·2, tarsus 0·9.

a. ♂. Hülül, S. Abyssinia, 1st Dec. No. 140. [*Type of the subspecies.*]

Pease's Abyssinian Hoopoe was not distinguished from the Common Hoopoe, and unfortunately only one specimen was secured.

200. IRRISOR ERYTHRORHYNCHUS.

Irrisor erythrorhynchus (Lath.); Grant, Ibis, 1900, p. 314; 1901, p. 290.

a. ♀ imm. Hoorsa, S. Abyssinia, 4th Dec. No. 174.

Iris brown; bill black; legs red.

[The Red-billed Wood-Hoopoe was generally seen in flocks of from ten to fifteen. They ran up trees just like Woodpeckers, and were both numerous and noisy.—A. E. P.]

201. RHINOPOMASTUS MINOR.

Rhinopomastus minor (Rüpp.); Grant, Ibis, 1900, p. 315; 1901, p. 290.

a. ♂. Dahol, Somaliland, 15th Nov. No. 58.

b. ♂. Choba, S. Abyssinia, 24th Dec. No. 306.

Iris brown; bill yellow; legs black.

[The Abyssinian Scimitar-billed Wood-Hoopoe was fairly common. The peculiar markings of its wings when in flight make it resemble a catherine-wheel.—A. E. P.]

202. BUCORAX ABYSSINICUS.

Bucorax abyssinicus (Bodd.); Grant, Ibis, 1900, p. 315; 1901, p. 290.

a. ♂. Errer Gōta, S. Abyssinia, 6th Dec. No. 206.

Iris brown; bill black, with a red patch at the base of the upper mandible; naked skin round the eye, on the chin, and the fore part of throat slate-blue; sides and basal part of the throat and fore-neck red; legs black.

[The Abyssinian Ground-Hornbill was quite common in small companies of two, three, or four individuals, and might be seen either walking on the ground or sitting in the trees. The flight is slow and heavy.—A. E. P.]

203. LOPHOCEROS HEMPRICHI.

Lophoceros hemprichi Ehr.; Grant, Ibis, 1900, p. 315.

a. ♀. Choba, S. Abyssinia, 24th Dec. No. 303.

Iris brown; bill dark red and brown; legs black.

[Three or four of these Hornbills were generally seen together, frequenting the higher grounds.—A. E. P.]

204. LOPHOCEROS NASUTUS.

Lophoceros nasutus (Linn.); Grant, Ibis, 1900, p. 315; 1901, p. 291.

a. ♀. Kassam R., S. Abyssinia, 22nd Dec. No. 283.

Iris brown; bill red, brown at tip; base of lower mandible black, upper white; legs black.

[This Hornbill was not common. We only noticed it once.—A. E. P.]

205. LOPHOCEROS ERYTHRORHYNCHUS.

Lophoceros erythrorhynchus (Temm.); Grant, Ibis, 1900, p. 315; 1901, p. 291.

a. ♀. Tadejemulka, S. Abyssinia, 23rd Dec. No. 296.

Iris brown; bill red-brown; legs black.

[The Red-billed Hornbill was seen everywhere in the low countries, and when flying made a considerable noise. It digs in the sand or soil, in company with Hoopoes, presumably for food; Mr. Harwood counted three of these Hornbills and seven Hoopoes all together on the ground engaged in this operation after a shower of rain.—A. E. P.]

206. LOPHOCEROS FLAVIROSTRIS.

Lophoceros flavirostris (Rüpp.); Grant, Cat. B. Brit. Mus. xvii. p. 412 (1892); id. Ibis, 1901, p. 291.

a. ♀. Lake El Toki, S. Abyssinia, 28th Feb. No. 591.

Iris pale yellow; bare skin round eye black; bill deep yellow, edges dark brown; legs black.

[We obtained the Yellow-billed Hornbill on the basalt-cliffs above the hot springs at El Toki, but did not meet with it elsewhere.—A. E. P.]

207. LOPHOCEROS DECKENI.

Lophoceros deckeni (Cab.); Grant, Cat. B. Brit. Mus. xvii. p. 416 (1892).

a. ♂. Alaga, S. Abyssinia, 24th Feb. No. 569.

Iris brown; bill with the basal half red, tip cream-coloured, cutting-edges black; legs black.

[Von der Decken's Hornbill was only observed in any number in one part of the Hawash Valley. My attention was first attracted to it by its singularly musical cry; the peculiarity of its behaviour when singing reminded me of the attitude of the Crimson-breasted Bush-Shrike (*Laniarius cruentus*). Its note was so different to that of *Lophoceros erythrorhynchus* that at first I did not believe that the cry was that of a Hornbill.—A. E. P.]

208. HAPALODERMA NARINA.

Hapaloderma narina Steph.; Grant, Cat. B. Brit. Mus. xvii. p. 477 (1892); id. Ibis, 1901, p. 291.

a. ♀. Myeesa R., S. Abyssinia, 14th Mar. No. 672.

b. ♂. Hoorsa, S. Abyssinia, 22nd Mar. No. 724.

Iris brown; bare skin on face bright blue and green, neck dark blue; bill pale blue-green, sides yellow; legs brown.

[The Narina Trogan was rarely seen, and then only in high trees by river-sides.—A. E. P.]

209. CERYLE RUDIS.

Ceryle rudis (Linn.); Grant, Ibis, 1900, p. 316.

a. ♂. Akaki River, S. Abyssinia, 30th Dec. No. 342.

b. ♂. Alaga, S. Abyssinia, 24th Feb. No. 567.

c. ♂ imm. Tadejemulka, S. Abyssinia, 3rd Mar. No. 605.

Iris brown; bill and legs black.]

[The Pied Kingfisher was seen on all the Abyssinian rivers, and also on Lakes Ailan and Zwai and at El Toki, constantly hovering over the water and fishing.—A. E. P.]

210. CERYLE MAXIMA.

Ceryle maxima (Pall.); Grant, Ibis, 1900, p. 316.

a. ♂. Lake El Toki, S. Abyssinia, 26th Feb. No. 578.

b. ♀. Tadejemulka, S. Abyssinia, 2nd Mar. No. 601.

Iris brown; bill black; legs green, toes black or dusky.

[The Great African Kingfisher was observed perching on stones in the water in rapid streams, and was even seen on a rock in the hot springs of El Toki; it also perches on trees near rivers.—A. E. P.]

211. ALCEDO SEMITORQUATA.

Alcedo semitorquata Swains.; Grant, Ibis, 1900, p. 316.

a. ♀. Errer Gōta, S. Abyssinia, 20th Mar. No. 708.

Iris brown; bill black, red at base of lower mandible; legs red.

[The Half-collared Kingfisher was only seen once on the Errer River.—A. E. P.]

212. CORYTHORNIS CYANOSTIGMA.

Corythornis cyanostigma (Rüpp.); Grant, Ibis, 1900, p. 316; 1901, p. 291.

a. ♂. Kassam R., S. Abyssinia, 21st Dec. No. 277.

b. ♂. Tadejemulka, S. Abyssinia, 2nd Mar. No. 604.

Iris brown; bill and legs bright red.

[The Malachite-crested Kingfisher was found on all the small streams in Abyssinia.—A. E. P.]

213. HALCYON SENEGALENSIS.

Halcyon senegalensis (Linn.); Sharpe, Cat. B. Brit. Mus. xvii. p. 242 (1892).

a. ♂. Lake Ailan, S. Abyssinia, 28th Jan. No. 411.

Iris brown; upper mandible dark red, lower black; legs black, soles of feet red.

[The Senegal Kingfisher was shot near Lake Ailan, S. of the Hawash, one hundred yards from the water's edge; it was perched in a high tree.—A. E. P.]

214. HALCYON SEMICÆRULEA.

Halcyon semicærulea (Forskål); Grant, Ibis, 1900, p. 317; 1901, p. 291.

a. ♀. Tadejemulka, S. Abyssinia, 3rd Mar. No. 606.

b. ♀. Arbawun, S. Abyssinia, 11th Mar. No. 663.

c. ♀. Myeesa River, S. Abyssinia, 14th Mar. No. 671.

d. ♀. Moulou River, S. Abyssinia, 15th Mar. No. 683.

e, f. ♂ ♀. Errer Gōta, S. Abyssinia, 20th Mar. Nos. 704, 709.

g. ♂. Fullfully, S. Abyssinia, 21st Mar. No. 714.

h–k. ♂ ♀ ♀. Hoorsa, S. Abyssinia, 22nd & 23rd Mar. Nos. 722, 728, 729.

Iris brown; bill and legs bright red.

[The African Grey-headed Kingfisher, though not observed in the water, was never far from its edge; it might frequently be seen catching beetles.—A. E. P.]

215. Halcyon chelicutensis.

Halcyon chelicutensis (Stanley); Grant, Ibis, 1900, p. 317; 1901, p. 291.

a, b. ♂ ♂. Filwa, S. Abyssinia, 20th Dec. Nos. 268, 269.

c. ♀. Tadejemulka, S. Abyssinia, 5th Mar. No. 619.

d. ♂. Arbawun, S. Abyssinia, 12th Mar. No. 667.

Iris brown; bill and legs red-brown; lower mandible red.

[The Striped Kingfisher gets its living entirely away from the water, and is very common.—A. E. P.]

216. Coracias abyssinicus.

Coracias abyssinicus Bodd.; Grant, Ibis, 1900, p. 317; 1901, p. 291.

a. ♂. Dalado, S. Abyssinia, 14th Dec. No. 237.

b. ♂. Arbawun, S. Abyssinia, 17th Dec. No. 248.

c. ♀. Hawash R., S. Abyssinia, 19th Dec. No. 258.

d, e, f. ♂ ♀. Kassam R., S. Abyssinia, 21st Dec. Nos. 279–281.

g. ♀. Tadejemulka, S. Abyssinia, 2nd Mar. No. 602.

Iris brown; bill black; legs dull yellow.

[The Abyssinian Roller was very common, very tame, and very noisy. It had a quick descent on the wing, followed by a side-to-side oscillation, and was observed hawking for locusts.—A. E. P.]

217. Coracias lorti.

Coracias lorti Shelley; Grant, Ibis, 1900, p. 317.

a, b. ♂ ♂. Hülül, S. Abyssinia, 1st Dec. Nos. 141, 144.
c. ♂. Sequala, S. Abyssinia, 26th Jan. No. 399.

Iris brown; bill black; legs dull yellow-green.

[Lort Phillips's Roller was restricted generally, so far as we observed, to Somaliland, though we obtained a solitary specimen near Mt. Sequala.—A. E. P.]

218. Coracias nævius.

Coracias nævius Daud.; Grant, Ibis, 1900, p. 318; 1901, p. 292.

a, b. ♂ ♂. Hülül, S. Abyssinia, 3rd Dec. Nos. 166, 167.
c. ♂. Fullfully, S. Abyssinia, 5th Dec. No. 190.
d. ♀. Moulou R., S. Abyssinia, 13th Dec. No. 236.
e. ♀. Jello, S. Abyssinia, 16th Feb. No. 512.
f. ♂. Arbawun, S. Abyssinia, 11th Mar. No. 664.

Iris brown; bill black; legs dull or dusky yellow.

[The White-naped Roller was very common, and was often seen sitting at the end of bare or dead branches or on the tops of dead trunks of trees. It was very easily approached. —A. E. P.]

219. Pœocephalus flavifrons.

Pœocephalus flavifrons (Rüpp.); Grant, Ibis, 1900, p. 318.

a. ♀. Roguecha, S. Abyssinia, 14th Feb. No. 501.

Iris orange-brown; upper mandible black-grey along the ridge, lower mandible greyish white; legs black.

[The Yellow-fronted Parrot was seen only on the higher Hawash and near the Meki River.—A. E. P.]

220. Pœocephalus rufiventris.

Pœocephalus rufiventris (Rüpp.); Grant, Ibis, 1900, p. 318; 1901, p. 292.

a. ♂. Somadu, Somaliland, 13th Nov. No. 29.
b. ♂. Dahol, Somaliland, 15th Nov. No. 60.

c. ♀. Moulou R., S. Abyssinia, 15th Mar. No. 686.

Iris orange-yellow; bill and legs black.

[The Red-bellied Parrot was very common.—A. E. P.]

221. AGAPORNIS TARANTÆ.

Agapornis tarantæ (Stanl.); Grant, Ibis, 1900, p. 318; 1901, p. 292.

a, b. ♂ ♀ vix ad. Sequala, S. Abyssinia, 27th Jan. Nos. 405, 406.

c. ♂. Bogra, S. Abyssinia, 30th Jan. No. 426.

d. ♂ imm. Jello, S. Abyssinia, 16th Feb. No. 519.

Iris brown; bill red; legs black.

[The Red-fronted Parrot was common generally, occurring in twos and fours; its flight was extremely rapid.—A. E. P.]

222. BUBO LACTEUS.

Bubo lacteus (Temm.); Grant, Ibis, 1900, p. 319; 1901, p. 292.

a. ♂. Errer Gōta, S. Abyssinia, 6th Dec. No. 207.

b. ♂. Ounji, S. Abyssinia, 19th Feb. No. 548.

Iris brown; bill light grey or pale greenish white.

[Verreaux's Eagle-Owl was very often seen; on one occasion we observed seven leaving one tree, but it was usually found in pairs.—A. E. P.]

223. CARINE SPILOGASTRA.

Carine spilogastra (Heugl.); Hawker, Ibis, 1899, p. 77; Grant, Ibis, 1901, p. 292.

a. ♀. Aruweina, S. Abyssinia, 14th Nov. No. 51.

Iris pale yellow; bill green-slate-coloured; legs green-brown.

[There were a number of Spot-breasted Little Owls at Aruweina.—A. E. P.]

224. GLAUCIDIUM PERLATUM.

Glaucidium perlatum (Vieill.); Grant, Ibis, 1900, p. 319; 1901, p. 292.

a. ♀. Melkadegaga, S. Abyssinia, 20th Feb. No. 551.

b. ♂. Dalado, S. Abyssinia, 16th Mar. No. 692.

c. ♀. Marko, S. Abyssinia, 17th Mar. No. 693.

d. ♂. Hoorsa, S. Abyssinia, 22nd Mar. No. 725.

Iris bright yellow; bill yellowish green; toes yellow.

[The Pigmy Owl was quite common on large trees by the sides of the rivers.—A. E. P.]

225. CIRCUS MACRURUS.

Circus macrurus Sharpe, P. Z. S. 1895, p. 505.

a. ♂. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 330.
b. ♂. Adis Ababa, S. Abyssinia, 7th Jan. No. 361.

Iris bright yellow or yellow; bill black; legs bright yellow or yellow.

[The Long-tailed Harrier was quite common.—A. E. P.]

226. ACCIPITER OVAMPENSIS.

Accipiter ovampensis Gurney, Ibis, 1875, p. 367, pl. vi.

a. ♂. Daba, S. Abyssinia, 7th Feb. No. 468.

Iris red-brown; bill black, cere and base of mandibles orange; legs orange.

The occurrence of this South-African form so far north is extremely interesting. It has not previously been recorded from north of the Equator.

[The Ovampoland Sparrow-Hawk was only observed with certainty on one occasion.—A. E. P.]

227. ACCIPITER MINULLUS.

Accipiter minullus (Daud.); Sharpe, Cat. B. Brit. Mus. i. p. 140 (1874); Salvad. Ann. Mus. Civ. Genov. xxi. p. 69 (1884).

a. ♂. Moulou R., S. Abyssinia, 15th Mar. No. 682.

Iris bright yellow; bill black, base yellow; legs bright yellow.

[The Least Sparrow-Hawk was only seen once.—A. E. P.]

228. MILVUS ÆGYPTIUS.

Milvus ægyptius (Gmel.); Lort Phillips, Ibis, 1898, p. 420; Grant, Ibis, 1901, p. 293.

a. ♂. Kora, S. Abyssinia, 11th Feb. No. 493.
b. ♂. Arbawun, S. Abyssinia, 10th Mar. No. 656.

Iris brown; bill and legs yellow.

[The Egyptian Kite was common everywhere: it was a ubiquitous scavenger in every camp, town, and village.—A. E. P.]

229. **MELIERAX POLYZONUS.**

Melierax polyzonus (Rüpp.); Grant, Ibis, 1900, p. 319; 1901, p. 293.

a. ♂. Aruweina, S. Abyssinia, 14th Nov. No. 54.

Iris brown; bill black, orange at base; legs orange-red.

[The Many-banded Goshawk was often seen hawking low over the ground like a Marsh-Harrier.—A. E. P.]

230. **MELIERAX GABAR.**

Melierax gabar (Daud.); Grant, Ibis, 1900, p. 319.

a. ♀. Sequala, S. Abyssinia, 27th Jan. No. 410.

Iris red-brown; bill black, base orange; legs orange-red.

[The Red-faced Goshawk was frequently seen. Birds' eggs, of the size of a Francolin's, were found in its crop.—A. E. P.]

231. **HALIAËTUS VOCIFER.**

Haliaëtus vocifer (Daud.); Sharpe, P. Z. S. 1895, p. 508; Grant, Ibis, 1901, p. 293.

a. ♂. Gorabouthа, S. Abyssinia, 17th Feb. No. 533.

b. ♂. Tadejemulka, S. Abyssinia, 2nd Mar. No. 600.

Iris yellow-brown; bill black, bright yellow at base; cere and sides of face bright yellow; legs white, tinged with yellow.

[The Vociferous Sea-Eagle was very common on the edges of Lakes Zwai and Ailan and also all along the larger rivers. I once observed it sitting on a bush over a stagnant rain-pool many miles from any river or lake.—A. E. P.]

232. **FALCO TANYPTERUS.**

Falco tanypterus Schleg.; Finsch, Tr. Z. S. vii. p. 203 (1870); Grant, Ibis, 1901, p. 294.

a. ♂ imm. Zaila, Somaliland, 8th Nov. No. 21.

b. ♀ ad. Guelan, S. Abyssinia, 25th Jan. No. 389.

Iris brown; bill dark blue, lighter towards base; legs yellow.

[The black-fronted form of the Lanner-Falcon was seen all the way from the coast to the Abyssinian highlands. I observed one catch and devour a large lizard.—A. E. P.]

233. POLIOHIERAX SEMITORQUATUS.

Poliohierax semitorquatus (Smith); Grant, Ibis, 1900, p. 320; 1901, p. 294.

a. ♀. Aruweina, Somaliland, 14th Nov. No. 49.

b, c. ♂. Gildessa, S. Abyssinia, 19th Nov. Nos. 74, 75.

d. ♀. Arbawun, S. Abyssinia, 10th Mar. No. 659.

Iris brown; bill pale blue, dark at tip; naked skin round eyes orange-red; legs orange-red.

[The African Falconet was quite common, and was often to be seen sitting solitary in the tops of high trees; it was very fearless.—A. E. P.]

234. CERCHNEIS TINNUNCULUS.

Cerchneis tinnunculus (Linn.); Grant, Ibis, 1900, p. 321; 1901, p. 294.

a. ♀. Adis Ababa, S. Abyssinia, 17th Jan. No. 380.

b. ♀. Sequala, S. Abyssinia, 26th Jan. No. 400.

Iris brown; bill pale blue, dark at tip; legs dull yellow.

[The Common Kestrel was seen everywhere.—A. E. P.]

235. PHALACROCORAX AFRICANUS.

Phalacrocorax africanus (Gmel.); Grant, Ibis, 1900, p. 321.

a. ♀ imm. Akaki R., S. Abyssinia, 23rd Jan. No. 384.

Iris red; bill dull yellow-brown; legs black.

[We saw the Little African Shag coming down the rivers in flights in the evening. It was a very common bird.—A. E. P.]

236. PLOTUS RUFUS.

Plotus rufus Lacép.; Grant, Ibis, 1900, p. 322.

a. ♂. Filwa, S. Abyssinia, 20th Dec. No. 272.

Iris brown; bill dusky grey; legs dusky black.

[We found the African Darters in great numbers in the warm-water lakes of Filwa and El Toki, as well as in the cold waters of Lake Ailan and occasionally on the Hawash. They were often seen sitting with their wings half extended and looking like bats.—A. E. P.]

237. PLECTROPTERUS RUEPPELLI.

Plectropterus rüppelli Scl.; Salvad. Cat. B. Brit. Mus. xxvii. p. 47 (1895); Grant, Ibis, 1901, p. 294.

a. ♂. Lake Ailan, S. Abyssinia, 29th Jan. No. 422.

Iris brown; face, wattle, and bare skin on neck coral-red; bill pink, nail white; legs dusky pink.

[Rüppell's Spur-winged Goose was first seen by us in pairs on Lake Ailan and shot from the shore with the rifle. Subsequently we saw large flocks on the marshes near the junction of the Moggoi River with the Hawash. In the dry skin the very marked and prominent scarlet or coral-red wattled membrane of the forehead, crest, and sides of the neck practically disappears.—A. E. P.]

238. CHENALOPEX ÆGYPTIACA.

Chenalopex ægyptiacus (Linn.); Grant, Ibis, 1900, p. 322; 1901, p. 294.

a, b. ♂ ♀. Owaramulka, S. Abyssinia, 6th Mar. Nos. 624, 625.

Iris yellow-brown; bill purplish pink, cutting-edge and nail dusky; legs light purplish pink.

[The Egyptian Goose was found, as a rule, in pairs on all the small streams and big rivers in Abyssinia.—A. E. P.]

239. ANAS UNDULATA.

Anas undulata Dubois; Grant, Ibis, 1900, p. 322.

a. ♂. Sequala, S. Abyssinia, 26th Jan. No. 402.

Iris brown; bill deep yellow, patch on culmen and nail black; legs black.

[The Yellow-billed Duck was the common species of the Abyssinian highlands. It is very good to eat.—A. E. P.]

240. ANAS SPARSA.

Anas sparsa Smith; Grant, Ibis, 1900, p. 323.

a. ♀. Mycesa R., S. Abyssinia, 14th Mar. No. 673.

Iris brown; bill pale purplish pink, centre and nail black; legs dark yellow.

[The White-barred Black Duck was only seen on the little Mycesa stream, where there were a pair.—A. E. P.]

241. PŒCILONETTA ERYTHRORHYNCHA.

Pœcilonetta erythrorhyncha (Gmel.); Grant, Ibis, 1900, p. 324.

a. ♂. Lake Ailan, S. Abyssinia, 29th Jan. No. 420.

Iris brown; bill purplish pink; legs dusky.

[The Crimson-billed Duck was shot on a rain-pool in a rock-hole near Lake Ailan.—A. E. P.]

242. NETTION CAPENSE.

Nettion capense (Gmel.); Salvad. Cat. B. Brit. Mus. xxvii. p. 259 (1895).

a. ♀. Lake El Toki, S. Abyssinia, 27th Feb. No. 589.

Iris pale yellowish brown; bill purplish pink, black at base; legs brown, webs dusky.

All the examples of this species preserved in the British Museum are from South Africa.

[The Cape Teal was found on El Toki Lake. It was not very common.—A. E. P.]

243. QUERQUEDULA CIRCIA.

Querquedula circia (Linn.); Grant, Ibis, 1900, p. 324.

a. ♀. Lake Ailan, S. Abyssinia, 29th Jan. No. 421.

Iris brown; bill dark slate-coloured; legs dusky.

[The Garganey was seen in large numbers on Lake Ailan. We believe that these birds were also on Lake Harramaier, but they were so far out that we could not be certain of their identity.—A. E. P.]

244. FULIGULA FULIGULA.

Fuligula fuligula (Linn.); Grant, Ibis, 1900, p. 325.

a. ♂ vix ad. Lake Harramaier, S. Abyssinia, 28th Nov. No. 126.

Iris yellow; bill dark slate-coloured, nail black; legs dark blue-slate-coloured, webs black.

[The Tufted Duck was only seen on Lake Harramaier.—A. E. P.]

245. SCOPUS UMBRETTA.

Scopus umbretta (Gmel.); Grant, Ibis, 1900, p. 326.

a. ♂. Alaga, S. Abyssinia, 25th Feb. No. 570.

b. ♀. Fullfully, S. Abyssinia, 21st Mar. No. 718.

Iris brown; bill and legs black.

[The Hammer-head Stork was very common near water.—A. E. P.]

246. PLEGADIS FALCINELLUS.

Plegadis falcinellus (Linn.) ; Sharpe, Cat. B. Brit. Mus. xxvi. p. 29 (1898).

a, b. ♀ ♀. Lake Harramaier, S. Abyssinia, 28th Nov. Nos. 117, 120.

Iris brown ; bill dusky green, with a narrow line of blue round the base ; legs dusky green.

[The Glossy Ibis was plentiful at Harramaier.—A. E. P.]

247. IBIS ÆTHIOPICA.

Ibis æthiopica (Lath.) ; Sharpe, P. Z. S. 1895, p. 512; Grant, Ibis, 1901, p. 295.

a. ♂. Lake Harramaier, S. Abyssinia, 28th Nov. No. 132.

Iris red-brown ; bill and legs black.

[The Sacred Ibis was common in large flocks on Lake Harramaier.—A. E. P.]

248. PLATALEA ALBA.

Platalea alba Scop. ; Sharpe, Cat. B. Brit. Mus. xxvi. p. 49 (1898) ; Grant, Ibis, 1901, p. 295.

a. ♂ imm. Lake El Toki, S. Abyssinia, 17th Feb. No. 590.

Iris brown ; bill blue-slate-coloured, base of bill and face purple-pink ; legs black.

This young bird is in a very interesting stage, and at the first glance might easily be mistaken for *P. regia* on account of its dark beak and black legs. The primaries, especially the outermost of them, are very brown on the outer web and towards the tip, and all the flight-feathers have black shafts.

[This specimen of the African Spoonbill was obtained at El Toki, where a few others were observed. Birds of all sorts, especially water-birds, herons, &c., were very numerous there, but, owing to the extent and denseness of the reeds and marsh, impossible to approach.—A. E. P.]

249. ARDETTA PODICIPES.

Ardetta podicipes (Bonap.) ; Sharpe, Cat. B. Brit. Mus. xxvi. p. 225 (1898).

a. ♀. Lake El Toki, S. Abyssinia, 28th Feb. No. 592.

Iris yellow; upper mandible black, lower light yellow; legs in front sage-green, behind bright yellow.

[The African Little Bittern was only seen at El Toki.—A. E. P.]

250. Bubulcus lucidus.

Bubulcus lucidus (Rafinesque); Sharpe, Cat. B. Brit. Mus. xxvi. p. 214 (1898); Grant, Ibis, 1900, p. 325.

Bubulcus ibis (Linn.); Grant, Ibis, 1901, p. 295.

a. ♂. Lake Harramaier, S. Abyssinia, 28th Nov. No. 127.

Iris pale yellow; bill bright yellow; legs dull yellow.

[The Buff-backed Heron was seen in large flocks at Lake Harramaier, where this specimen was obtained.—A. E. P.]

251. Butorides atricapillus.

Butorides atricapillus (Afz.); Sharpe, Cat. B. Brit. Mus. xxvi. p. 172 (1898); Grant, Ibis, 1901, p. 296.

a. ♀. Tadejemulka, S. Abyssinia, 3rd Mar. No. 607.

b. ♂ imm. Fullfully, S. Abyssinia, 21st Mar. No. 717

Iris yellow or pale yellow; bill black or dusky horn-coloured, lower mandible yellow-green, bright yellow from eye to nostril; legs in front green-brown or brown, behind yellow.

[The African Black-headed Heron was seen on several of the Abyssinian rivers. It is shy, and shuns observation during the day.—A. E. P.]

252. Nycticorax nycticorax.

Nycticorax griseus Linn.; Salvad. Ann. Mus. Civ. Genov. xxi. p. 229 (1884).

Nycticorax nycticorax (Linn.); Sharpe, Cat. B. Brit. Mus. xxvi. p. 146 (1898).

a. ♂. Errer Gōta, S. Abyssinia, 20th Mar. No. 711.

Iris red; bare skin round eye yellow-green; bill dark horn-coloured; legs pale yellow.

[The Night-Heron was only observed near rivers running through thick forest-jungle. It was never seen on the ground by either Mr. Harwood or myself.—A. E. P.]

253. LEPTERODIUS GULARIS.

Lepterodius gularis (Bosc); Sharpe, Cat. B. Brit. Mus. xxvi. p. 114 (1898); Grant, Ibis, 1901, p. 296.

a. ♂. Zaila, Somaliland, 7th Nov. No. 18.

Iris pale yellow; bill dull yellow, upper mandible darker; legs light yellow-green, above the tibio-tarsal joint black.

[The Reef-Heron—in the white phase of its plumage—was plentiful on the coast and on the large waters up country.—A. E. P.]

254. EUPODOTIS KORI.

Eupodotis kori Burch.; Grant, Ibis, 1900, p. 327.

a. ♀. Goraboutha, S. Abyssinia, 16th Feb. No. 532.

b. ♂. Melkadegaga, S. Abyssinia, 23rd Feb. No. 561.

Iris marbled yellow-brown; upper mandible dark horn-coloured, lower bluish white; legs yellowish white.

[The Kori Bustard or Paauw is a very common bird; the male shot was one of a flock of nine. I counted seventeen in half an hour's march in the Danakil country.—A. E. P.]

255. NEOTIS HEUGLINI.

Neotis heuglini (Hartl.); Sharpe, Cat. B. Brit. Mus. xxiii. p. 303 (1894).

a. ♂. Hensa, Somaliland, 2nd April. No. 755.

Iris brown; bill dark slate-coloured; lower mandible light; legs yellowish white.

[Heuglin's Bustard is a much rarer bird than the Kori Bustard.—A. E. P.]

256. LISSOTIS LOVATI.

Lissotis lovati Grant, Ibis, 1900, p. 326.

a. ♂. Sequala, S. Abyssinia, 26th Jan. No. 401.

b. ♂ imm. Aila, S. Abyssinia, 3rd Feb. No. 446.

Iris marbled yellow-brown; upper mandible dusky, lower light yellow; legs yellow-white.

It is very interesting to get additional specimens of this Bustard. The adult male agrees exactly with the type, and has the middle three-fifths of the outer webs of the secondaries pure white to the shaft; the young male is in female plumage, and has the innermost primary of either wing in the semi-adult black-and-white plumage. In addition to these males we have recently examined a fine adult pair procured by Mr. Hawker on the White Nile, and as all these agree perfectly, there is no doubt that *L. lovati* is a well-founded species.

[Lovat's Bustard appears to be one of the commonest members of the family in the district; but Mr. Grant tells me that *L. melanogaster* and *L. hartlaubi* are both found in the same country, and may easily have been mistaken for the present species.—A. E. P.]

257. LOPHOTIS GINDIANA.

Lophotis gindiana (Oust.); Sharpe, Cat. B. Brit. Mus. xxiii. p. 292 (1894).

a. ♂. Hojojo, S. Abyssinia, 12th Mar. No. 669.
b. ♂. Tolo, S. Abyssinia, 19th Mar. No. 703.

Iris yellow-brown or yellow; upper mandible dark slate-coloured, lower light; legs pale blue-slate-coloured or yellowish white.

[The Buff-crested Bustard was not uncommon throughout our journey.—A. E. P.]

258. ŒDICNEMUS ŒDICNEMUS.

Œdicnemus œdicnemus (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 4 (1896).

Œdicnemus scolopax Dresser; Lort Phillips, Ibis, 1898, p. 421.

a, b. ♀ ♂. Lake Zwai, S. Abyssinia, 5th Feb. Nos. 466, 467.

Iris and eyelids light yellow; bill black, light yellow at base; legs light yellow.

259. PHYLLOPEZUS AFRICANUS.

Parra africana Gmel.; Salvad. Ann. Mus. Civ. Genov. xxi. p. 225 (1884).

Phyllopezus africanus (Gmel.); Grant, Ibis, 1901, p. 297.

a–e. ♂ ♀ et ♀ imm. Lake Ailan, S. Abyssinia, 29th Jan. Nos. 413–417.

Iris brown; bill blue-slate-coloured; naked forehead and crown pale blue; legs greenish slate-coloured.

260. CURSORIUS TEMMINCKI.

Cursorius temmincki (Wagl.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 41 (1896).

a, b. ♂ ♀. Bogra, S. Abyssinia, 30th Jan. Nos. 428, 429.

c. ♀. Kora, S. Abyssinia, 10th Feb. No. 473.

Iris brown; bill black; legs white.

261. RHINOPTILUS HARTINGI.

Rhinoptilus hartingi Sharpe, Cat. B. Brit. Mus. xxiv. p. 46, pl. ii. (1896); Grant, Ibis, 1901, p 296.

a. ♀. Las Mân, Somaliland, 12th Nov. No. 26.

b. ♂. Dahol, Somaliland, 15th Nov. No. 59.

c. ♂. Tolo, S. Abyssinia, 19th Mar. No. 702.

d. ♂. Manda, Somaliland, 3rd April. No. 762.

Iris brown; bill black; legs white.

The specimens of Harting's Courser collected by Mr. Pease vary considerably in tint. It seems to us very doubtful whether *R. hartingi* is really separable from the allied *R. bisignatus.*

262. STEPHANIBYX CORONATUS.

Stephanibyx coronatus (Bodd.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 178 (1896); Grant, Ibis, 1901, p. 297.

a. ♀. Melkadegaga, S. Abyssinia, 23rd Feb. No. 558.

Iris yellow; bill black, red at base; legs red-pink.

263. STEPHANIBYX MELANOPTERUS.

Stephanibyx melanopterus (Cretschm.); Grant, Ibis, 1900, p. 328.

a, b. ♂ ♀. Adis Ababa, S. Abyssinia, 17th Jan. Nos. 381, 382.

Iris pale yellow; bill black; legs dark rose-pink.

264. HOPLOPTERUS SPINOSUS.

Hoplopterus spinosus (Linn.); Grant, Ibis, 1900, p. 328.

a. ♀. Lake Harramaier, S. Abyssinia, 28th Nov. No. 129.

b. ♂. Errer Gōta, S. Abyssinia, 6th Dec. No. 200.
c. ♂. Lake Zwai, S. Abyssinia, 4th Feb. No. 447.

Iris red; bill and legs black.

265. HIMANTOPUS HIMANTOPUS.

Himantopus himantopus (Linn.); Grant, Ibis, 1900, p. 330.

a, b. ♀. Lake Harramaier, S. Abyssinia, 28th Nov. Nos. 122, 123.

Iris red; bill black; legs pinkish red.

266. LIMOSA LIMOSA.

Limosa limosa (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 381 (1896).

a–c. ♀. Lake Harramaier, S. Abyssinia, 28th Nov. Nos. 118, 119, & 130.

Iris brown; bill brown, shading to black at tip; legs dusky.

267. HÆMATOPUS OSTRALEGUS.

Hæmatopus ostralegus Linn.; Sharpe, Cat. B. Brit. Mus. xxiv. p. 107 (1896).

a. ♀. Zaila, Somaliland, 8th Nov. No. 24.

Iris red; bill orange-red, dark at tip; legs dull purplish brown.

This Oystercatcher was in winter plumage.

268. ARENARIA INTERPRES.

Arenaria interpres (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 92 (1896).

a. ♂. Zaila, Somaliland, 7th Nov. No. 16.

Iris brown; bill black; legs dull orange.

269. OCHTHODROMUS ASIATICUS.

Ochthodromus asiaticus (Pall.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 230 (1896).

a, b. ♂. Melkadegaga, S. Abyssinia, 23rd Feb. Nos. 559, 560.

Iris brown; bill black; legs light greenish slate-coloured.

The Caspian Sand-Plover was in summer plumage.

270. OCHTHODROMUS GEOFFROYI.

Ochthodromus geoffroyi Wagl.; Sharpe, Cat. B. Brit. Mus. xxiv. p. 217 (1896).

♂. Zaila, Somaliland, 8th April. No. 776.

Iris brown; bill black; legs grey, toes dusky.

271. OXYECHUS TRICOLLARIS.

Oxyechus tricollaris (Vieill.); Grant, Ibis, 1900, p. 330.

a. ♂. Somadu, Somaliland, 13th Nov. No. 43.

272. ÆGIALITIS DUBIA.

Ægialitis dubia Scop.; Grant, Ibis, 1900, p. 330.

a. ♀. Bogra, S. Abyssinia, 30th Jan. No. 427.

Iris brown; bill black; legs dusky yellow.

273. ÆGIALITIS ALEXANDRINA.

Ægialitis alexandrina (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 275 (1896); Grant, Ibis, 1901, p. 297.

a. ♀. Zaila, Somaliland, 4th Nov. No. 5.

b. ♂. Lake Zwai, S. Abyssinia, 4th Feb. No. 447.

c, d. ♂. Zaila, Somaliland, 8th April. Nos. 773, 774.

Iris brown; bill black; legs light grey or slate-coloured, toes dusky or black.

274. CALIDRIS ARENARIA.

Calidris arenaria (Linn.); Lort Phillips, Ibis, 1898, p. 423.

a. ♀. Zaila, Somaliland, 8th April. No. 775.

Iris brown; bill and legs black.

The Sanderling was in full winter plumage.

275. TRINGOIDES HYPOLEUCUS.

Tringoides hypoleucus (Linn.); Grant, Ibis, 1900, p. 328.

a, b. ♂ ♀. Zaila, Somaliland, 6th Nov. & 8th April. Nos. 15, 778.

Iris brown; bill black; legs dull yellow-green, toes darker.

276. HELODROMAS OCHROPUS.

Helodromas ochropus (Temm.); Grant, Ibis, 1900, p. 329.

a. ♀. Guelan, S. Abyssinia, 24th Jan. No. 388.

b, c. ♂ ♀. Fullfully, S. Abyssinia, 21st Mar. Nos. 715, 716.

Iris brown; bill black; legs sage-green or greenish grey.

277. PAVONCELLA PUGNAX.

Pavoncella pugnax (Linn.); Grant, Ibis, 1900, p. 329.

a, b. ♂ ♀. Lake Harramaier, S. Abyssinia, 29th Nov. Nos. 135, 136.

c. ♂. Lake El Toki, S. Abyssinia, 27th Feb. No. 588.

♀. Iris brown; bill black; legs dark slate-coloured.

♂. Iris brown; bill black; legs dull orange.

[Two Ruffs and a Reeve in winter plumage were shot on a tarn an hour's journey from Harramaier, where this bird was in great numbers.—A. E. P.]

278. TOTANUS CALIDRIS.

Totanus calidris (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 414 (1896).

a. ♀. Zaila, Somaliland, 8th Nov. No. 22.

Iris brown; bill dark, dusky pink at base; legs dull orange-red.

279. TOTANUS STAGNATILIS.

Totanus stagnatilis Bechst.; Salvad. Ann. Mus. Civ. Genov. xxi. p. 221 (1884).

a. ♀. Lake El Toki, S. Abyssinia, 27th Feb. No. 586.

Iris brown; bill black; legs dull yellowish green.

280. TRINGA SUBARQUATA.

Tringa subarquata (Güld.); Hawker, Ibis, 1899, p. 81.

a, b. ♂ ♀. Zaila, Somaliland, 4th Nov. Nos. 2 & 3.

Iris dark brown; bill and legs black.

281. GALLINAGO GALLINULA.

Limnocryptes gallinula (Linn.); Sharpe, Cat. B. Brit. Mus. xxiv. p. 665 (1896).

a, b. ♀. Lake El Toki, S. Abyssinia, 26th & 28th Feb. Nos. 583 & 593.

Iris brown; bill dusky; legs dull greenish or light greenish slate-coloured.

282. Dromas ardeola.

Dromas ardeola Paykull; Sharpe, Cat. B. Brit. Mus. xxiv. p. 28 (1896).

a, b, c. ♂ ♀. Zaila, Somaliland, 4th Nov. Nos. 6, 7, 8.

d. ♀. Zaila, Somaliland, 8th April. No. 779.

Iris dark brown; bill black; legs pale blue or light blue-green, toes darker.

283. Sterna minuta.

Sterna minuta Linn.; Saunders, Cat. B. Brit. Mus. xxv. p. 116 (1896).

a. ♂. Zaila, Somaliland, 8th April. No. 777.

Iris brown; bill yellow, tip black; legs dull orange.

This specimen of the Little Tern is a typical example with only the *two* outer primaries mostly black. *S. saundersi* is said to be the form found on the Red Sea coast.

284. Gelochelidon anglica.

Gelochelidon anglica (Mont.); Saunders, Cat. B. Brit. Mus. xxv. p. 25 (1896); Grant, Ibis, 1901, p. 297.

a. ♀. Zaila, Somaliland, 8th Nov. No. 23.

Iris, bill, and legs black.

285. Anous stolidus.

Anous stolidus (Linn.); Saunders, Cat. B. Brit. Mus. xxv. p. 136 (1896).

a. ♂. Zaila, Somaliland, 3rd Nov. No. 1.

Iris brown; bill black; legs dusky black.

The Noddy Tern is nearly cosmopolitan in its distribution.

286. Limnocorax niger.

Limnocorax niger (Gmel.); Sharpe, Cat. B. Brit. Mus. xxiii. p. 150 (1894).

a. ♂ imm. Lake Zwai, S. Abyssinia, 4th Feb. No. 449.

b, c. ♂ ♀. Lake El Toki, S. Abyssinia, 26th Feb. Nos. 579 & 580.

Ad. Iris and eyelids red; bill yellow-green; legs coral-red.

Imm. Iris brown, eyelids red; bill yellow-green; legs dusky red.

287. FULICA CRISTATA.

Fulica cristata Gmel.; Sharpe, Cat. B. Brit. Mus. xxiii. p. 215 (1894); id. P. Z. S. 1895, p. 516.

a–c. ♂. Lake Harramaier, S. Abyssinia, 28th Nov. Nos. 121, 124, 125.

No. 121 is a semi-albino.

Iris red; bill blue-slate-coloured; head bluish white, comb dark red; legs dull slate-coloured.

Four eggs brought home resemble those of the Common Coot, and measure as follows:—1·95 × 1·5 inches; 2·05 × 1·5; 2·2 × 1·5; 2·25 × 1·5.

[The Cresteds Coot were seen in great numbers on the margin of Lake Harramaier, where they were breeding. They were not observed on any of the other lakes at a lower altitude.—A. E. P.]

288. PODICIPES CAPENSIS.

Podicipes capensis Licht.; Grant, Ibis, 1900, p. 331.

a. ♂. Lake Harramaier, S. Abyssinia, 28th Nov. No. 128.

Iris brown; bill and legs black.

289. VINAGO WAALIA.

Vinago waalia (Gmel.); Grant, Ibis, 1900, p. 331.

a, b. ♂. Bogra, S. Abyssinia, 1st Feb. Nos. 435, 436.

c, d. ♀. Katyinwaha, S. Abyssinia, 9th Mar. Nos. 652, 653.

Iris orange; bill light slate-coloured; legs dull yellow.

[The Waalia Fruit-Pigeon is easily shot where there are wild fig-trees, to which it flocks in great numbers; it is curious how a very bare tree may be full of these lovely birds and yet one can with difficulty find them, their plumage is in such perfect harmony with the foliage.—A. E. P.]

290. COLUMBA ALBITORQUES.

Columba albitorques Rüpp.; Grant, Ibis, 1900, p. 331.

a. ♀. Akaki R., S. Abyssinia, 30th Dec. No. 340.

[The White-naped Pigeon was only seen in rocky gorges; when disturbed the large flocks circle to a great height like domestic pigeons, alighting again together.—A. E. P.]

291. COLUMBA GUINEA.

Columba guinea (Linn.); Grant, Ibis, 1900, p. 332.

a. ♂. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 321.

Iris orange; bill black; naked skin round eye dark purplish red; legs pale red.

292. TURTUR LUGENS.

Turtur lugens (Rüpp.); Grant. Ibis, 1900, p. 332.

a. ♂. Kora, S. Abyssinia, 10th Feb. No. 474.

Iris orange; bill black; legs red.

293. TURTUR SEMITORQUATUS.

Turtur semitorquatus (Rüpp.); Grant, Ibis, 1900, p. 332.

a. ♂. Akaki R., S. Abyssinia, 23rd Jan. No. 383.

Iris orange-brown; bill black; legs dark red.

294. TURTUR SENEGALENSIS.

Turtur senegalensis (Linn.); Grant, Ibis, 1900, p. 333.

a. ♂. Somadu, Somaliland, 13th Nov. No. 38.

b. ♂. Harrar, S. Abyssinia, 24th Nov. No. 95.

Iris brown; bill black; legs red.

295. ŒNA CAPENSIS.

Œna capensis (Linn.); Grant, Ibis, 1900, p. 333.

a. ♀. Errer Gōta, S. Abyssinia, 9th Dec. No. 216.

b, c. ♂ ♀. Hawash R., S. Abyssinia, 19th Dec. Nos. 259, 260.

d. ♂. Sequala, S. Abyssinia, 27th Jan. No. 404.

e, f. ♂ ♀. Somadu, Somaliland, 31st Mar. Nos. 747, 748.

Iris brown; bill dark yellow; legs red-brown or dark red.

296. CHALCOPELIA AFRA.

Chalcopelia afra (Linn.); Grant, Ibis, 1900, p. 334.

a. ♂. Hülül, S. Abyssinia, 2nd Dec. No. 157.

b. ♀. Roguecha, S. Abyssinia, 14th Feb. No. 500.

a. Iris brown; bill black; legs dark red.

b. Iris brown; bill dull red, yellow at tip; legs dull red.

Specimen *a*, a small bird, with the wing measuring 4·2 inches, has the metallic spots on the wing rich golden green.

Specimen *b*, a much larger bird, wing 4·5 inches, has the metallic spots on the wing steel-blue.

Count Salvadori (Cat. B. Brit. Mus. xxi. p. 508) states that the female has the wing-spots golden green, while in the male they are steel-blue; but the difference is purely individual and not sexual.

297. PTEROCLURUS EXUSTUS.

Pteroclurus exustus (Temm.); Grant, Cat. B. Brit. Mus. xxii. p. 12 (1893); id. Ibis, 1901, p. 298.

a. ♂. Lake Ailau, S. Abyssinia, 29th Jan. No. 419.

b, c. ♂ ♀. Khaldina, S. Abyssinia, 18th Feb. Nos. 534, 535.

Iris brown; bill grey, darker along the culmen; feet grey.

298. PTEROCLES LICHTENSTEINI.

Pterocles lichtensteini Temm.; Grant, Cat. B. Brit. Mus. xxii. p. 29 (1893); id. Ibis, 1901, p. 298.

a, b. ♂ ♀. Bogra, S. Abyssinia, 31st Jan. Nos. 432, 433.

c. ♂. Arbawun, S. Abyssinia, 10th Mar. No. 657.

Iris brown; bill yellow-brown; legs yellow.

299. FRANCOLINUS GRANTI.

Francolinus granti Hartl.; Sharpe, P. Z. S. 1895, p. 520; Grant, Ibis, 1901, p. 299.

a, b. ♂ ♀. Hülül, S. Abyssinia, 3rd Dec. Nos. 169, 170.

Iris brown; bill black; legs red.

[We found Grant's Francolin common all along the Hawash Valley, and on March 6th observed several young broods, but never more than four in a covey. These birds begin calling at least one hour before sunrise.—A. E. P.]

300. FRANCOLINUS SHARPII.

Francolinus sharpii Grant, Ibis, 1900, p. 335.

a. ♀. Sequala, S. Abyssinia, 27th Jan. No. 403.

b. ♂. Hawash River, S. Abyssinia, 28th Jan. No. 412.

Iris brown; naked skin round eye red; bill black; legs dark brown, dark red in front.

301. FRANCOLINUS TETRAONINUS.

Francolinus tetraoninus Weld-Blundell & Lovat; Grant, Ibis, 1900, p. 336, pl. v.

a. ♀. Lake Zwai, S. Abyssinia, 5th Feb. No. 465.

Iris brown; bill dark red; legs bright red.

This specimen agrees generally with the type procured by Lord Lovat at Mendi in having the dark middles to the feathers of the nape, interscapular region, &c. much more faintly indicated than in typical *F. schuetti.* When a larger series is forthcoming it is quite possible that the two forms may be found to grade into one another.

[The Grouse-like Francolin was only seen on one occasion frequenting very dense bush, which it could not be forced to leave.—A. E. P.]

302. FRANCOLINUS ERCKELI.

Francolinus erckeli Rüpp.; Grant, Cat. B. Brit. Mus. xxii. p. 172 (1893).

a. ♀. Jeffi Dunsa, S. Abyssinia, 28th Dec. No. 329.

Iris brown; bill black; legs dull yellow.

[Erckel's Francolin was the only "Partridge" seen in the open rolling country of the high plateau.—A. E. P.]

303. Pternistes infuscatus.

Pternistes infuscatus Cab.; Grant, Cat. B. Brit. Mus. xxii. p. 182, pl. viii. fig. 2 (1893); Lort Phillips, Ibis, 1898, p. 425; Grant, Ibis, 1901, p. 299.

a. ♀. Hoorsa, S. Abyssinia, 4th Dec. No. 182.

b. ♀. Hoorsa, S. Abyssinia, 22nd Mar. No. 720.

Iris brown; bill and legs black; throat and face deep red; neck yellow.

[Cabanis's Bare-throated Francolin was generally seen in pairs.—A. E. P.]

304. Coturnix coturnix.

Coturnix coturnix Linn.; Grant, Cat. B. Brit. Mus. xxii. p. 232 (1893); id. Ibis, 1901, p. 299.

a. ♀. Hülül, S. Abyssinia, 1st Dec. No. 149.

b, c. ♂. Katyinwaha, S. Abyssinia, 9th Mar. Nos. 654, 655.

d. ♂. Aroharlaise, Somaliland, 4th April. No. 768.

Iris and bill brown; legs yellow.

305. Coturnix delegorguii.

Coturnix delegorguei Deleg.; Grant, Cat. B. Brit. Mus. xxii. p. 243 (1893).

a. ♂. Guelan, Somaliland, 25th Jan. No. 391.

b. ♂. Ounji, Somaliland, 19th Feb. No. 547.

Iris brown; bill black; legs pale yellowish brown.

[Not often seen.—A. E. P.]

XLV.—*Results of an Ornithological Journey through Colombia and Ecuador.*—Part III. By Walter Goodfellow, F.Z.S.

[Continued from p. 480.]

(Plate XIV.)

Family Tyrannidæ.

162. Conopophaga aurita (Gm.).

One male shot in April at Archidona, Eastern Ecuador, among the thick undergrowth on the river-bank. It was disputing with, or seemed to be disturbed by, the presence of a male *Chiromachæris gutturosa,* and both were shot together. With lowered head, it kept opening and shutting its wings very rapidly, making a curious whirring sound all the time. Iris reddish brown.

163. AGRIORNIS SOLITARIA Scl.

Three ♂s & 2 ♀s from Quito and its environs. They are common birds around the city, and may be seen everywhere on the house-tops, especially during the months of November and December, when they appeared to be in greater numbers. They have loud liquid notes, but the song is not sustained. We saw them on the Western Andes at altitudes of from 8500 to 11,000 feet, where they generally sat about on the rocks and stones, but not at any of the localities where we collected on the Eastern Andes. In Quito they nested under the tiles of the roofs and in the church towers. Iris light brown. Local name "Solitario."

164. MYIOTHERETES ERYTHROPYGIUS Scl.

One male from Pichincha, Western Andes, at 14,000 feet, and one male from the Guamani Pass, Eastern Andes, at nearly 16,000 feet. I noticed these birds at other elevated localities on both sides of Ecuador, but always singly. The rufous bases to the tail-feathers make them conspicuous when flying. The Eastern specimen is rather paler on the head than the one from the Western Andes. The stomach contained small moths and beetles.

165. MYIOTHERETES STRIATICOLLIS Scl.

Two males from Pichincha, at about 10,000 feet elevation. Found sitting on the tops of the low bushes, whence they fly upwards into the air with a kind of somersault-motion, apparently taking their insect-prey on the wing.

166. OCHTHODIÆTA FUMIGATUS (Boiss.).

Three males from Pichincha from an altitude of between 11,500 and 13,000 feet, and one male and one female from Papallacta, Eastern Andes, 11,500 feet. All our specimens from both sides of Ecuador were shot at sunset, the only part of the day when we observed these birds. They seemed to feed principally on small moths, which they caught on the wing near to the ground. The female is more reddish about the vent than the male.

167. Ochthœca œnanthoides (Lafr. & D'Orb.).

This is *O. œnanthoides brunneifrons* Berl. & Stolzm. We obtained 4 ♂s and 2 ♀s from Pichincha, Mojanda, and Papallacta, Western, Central, and Eastern Ecuador, at altitudes above 11,000 feet. It was generally seen singly on the highest twigs of low bushes in the sheltered ravines or "quebradas."

168. Ochthœca citrinifrons Scl.

Five ♂s, 2 ♀s. West side of Pichincha and Papallacta at altitudes of from 11,000 to 12,500 feet.

169. Ochthœca lessoni (Scl.).

Six ♂s, 2 ♀s, from Pichincha and Aloag, West Ecuador, the Mojanda Pass, North Ecuador, and Papallacta, East Ecuador. Common at high altitudes on both Cordilleras.

170. Ochthœca rufimarginata (Lawr.).

Six ♂s, 6 ♀s from the western sides of Pichincha and Corazón, Western Andes, at altitudes of about 12,000 feet. All those we shot in September on Corazón were in pairs. The females appear to be shorter in the wing than the males.

171. Ochthœca cinnamomeiventris (Lafr.).

Two ♂s, 1 ♀. Lloa; Pichincha.

172. Ochthœca gratiosa Scl.

Eight ♂s, 5 ♀s. Intag, Mindo, and above Milligalli, Western Ecuador. We found these birds very plentiful at the last-named locality in September. They were evidently then commencing to nest, as the males were constantly chasing the females.

173. Ochthœca stictoptera (Scl.).

Six ♂s, 5 ♀s from high altitudes on Pichincha and Corazón, West Ecuador, Papallacta, East Ecuador, and one specimen shot on the road crossing the Mojanda, North Ecuador. These birds were seen in pairs on Corazón in September, but singly on the Eastern Andes in February.

174. Sayornis cineracea (Lafr.).

Two ♂s, San Nicolas, in the forests of the Pacific side, and one ♂ from Papallacta, Eastern Ecuador, 11,500 feet. The latter has the wing-coverts edged with cinnamon. They frequent stones in the river-beds and dead stumps in marshy places. Iris reddish brown.

175. Copurus colonus (Vieill.).

One male, Archidona, Eastern Ecuador. Rare in this region, for we never saw but one specimen.

176. Muscisaxicola alpina Jard.

Two ♂s, 1 ♀, Pichincha, 15,000 feet, and one ♀ shot near the summit of the Guamani Pass, Eastern Andes, 16,000 feet. These birds are solitary in their habits and sit about among the grey cinders, consequently they are difficult to see, while they do not take wing until one is close to them.

177. Platyrhynchus albogularis Scl.

Two ♂s, 1 ♀. San Nicolas and Gualea, in the western forests. This species is generally to be observed in the evening, and always singly. It frequents low bushes near the edges of the forest, where the ground is damp and marshy. It has a curious note, much resembling the croak of some kinds of frogs.

178. Todirostrum sclateri (Cab. & Hein.).

Todirostrum sclateri Scl. Cat. B. xiv. p. 71.

Five ♂s, 4 ♀s. Intag, Santo Domingo, and San Nicolas. Common at the two latter places, especially in the evening among the orange-trees. After the trees had finished flowering we seldom saw one about. Iris yellow.

179. Todirostrum rufigene Scl. & Salv.

Todirostrum rufigene Scl. Cat. B. xiv. p. 76.

Two ♂s. Baeza, Eastern Ecuador. Iris light reddish brown. Evidently rare in this locality.

180. EUSCARTHMUS SQUAMICRISTATUS (Lafr.).

Six ♂s, 7 ♀s. Common at San Nicolas in September, but during a few days' stay there at the end of the following month we did not observe a single individual in their former haunts. We also procured specimens at Santo Domingo and Guanacillo in the western forests.

181. PSEUDOTRICCUS PELZELNI (Tacz. & Berl.).

Pseudotriccus pelzelni Tacz. & Berl. P. Z. S. 1885, p. 88.

Two ♂s. One from Milligalli and the other from Gualea, West Ecuador. Both were shot in high trees and among the creepers. The birds appear to prefer the more open parts of the mountain-slopes; they are restless, and utter an incessant monotonous note, much resembling that of *Myiobius ornatus.*

182. HAPALOCERCUS ACUTIPENNIS Scl. & Salv.

One male only, from the Santa Carolina marshes just outside Quito on the north, and evidently scarce there. This species lives among wiry grass, clinging to the longest bents as it flies from clump to clump. Iris dark red.

183. POGONOTRICCUS OPHTHALMICUS (Tacz.).

Three ♂s, 2 ♀s, from the western sides of Pichincha and Corazón along the edge of the forest-limit, keeping to the thicker parts.

184. SERPHOPHAGA CINEREA (Strickl.).

Four ♂s, 1 ♀. Intag, Mindo, and the Chillo Valley.

185. SERPHOPHAGA RUFICEPS (Lafr.).

One male from Mindo, Western Ecuador.

186. SERPHOPHAGA PŒCILOCERCA (Scl. & Salv.).

A single male from Nanegal, Western Ecuador.

187. ANÆRETES PARULUS (Kittl.).

A large series of birds from the neighbourhood of Quito, where they were very common during the months of November and December along all the hedgerows. In the way they cling to the twigs &c. they much resemble some of our English Tits. They go about in small flocks of from nine to a dozen, and are very tame. We shot two at Tulcar, on the northern frontier, but they did not appear to be so common there as they were around Quito. In Ecuador this species is doubtless confined to the central region, for we met with it neither on the eastern nor the western sides. The female has a shorter crest than the male.

188. ANÆRETES AGILIS Scl.

Four ♂s, 2 ♀s, from the eastern slopes of Pichincha, Pedregal, and from Papallacta, Eastern Andes, 11,500 feet. The single male from Pedregal differs from all the others in being of a lighter and browner shade throughout. This species is very local, and we never observed more than a pair together. The few we saw at Papallacta were among the ruins of the mud huts, and I caught one in the thatch of ours, where it had gone to roost for the night.

189. MIONECTES OLIVACEUS (Lawr.).

Four ♂s, 2 ♀s. The males we shot at San Nicolas and Gualea and the two females at Canzacota. The latter have the under wing-coverts strongly shaded with olive-green, which the males have not. Found singly in the higher trees where most covered with creepers.

190. LEPTOPOGON PŒCILOTIS Scl.

One male from the lower western side of Pichincha.

191. TYRANNISCUS NIGRICAPILLUS (Lafr.).

Two ♂s, 2 ♀s. From the western slopes of Pichincha and Corazón. This was the only species of *Tyranniscus* we found singly. It frequented high trees and was not common. The females have shorter wings than the males, the outer margins being edged with cinnamon.

192. TYRANNISCUS CINEREICEPS (Scl.).

Two ♂s, 1 ♀. Intag. Iris light yellow.

193. TYRANNISCUS CHRYSOPS Scl.

Four ♂s, 6 ♀s. Gualea, Intag, and Nono, West Ecuador. In small flocks, and fairly numerous in the more open parts.

194. TYRANNISCUS PARVUS Lawr.

Six ♂s, 6 ♀s. These birds were common at Santo Domingo and Guanacillo in October. They frequented the fruit-trees, especially the guavas, in the clearings around the huts, clinging to the flowers and twigs, and searching for insects all day long. They were so tame that on two occasions I caught examples in a butterfly-net.

195. ELAINEA PAGANA (Licht.).

Two ♂s. Archidona, Eastern Ecuador. Frequents the clearings around the Indian huts.

196. ELAINEA ALBICEPS (Lafr. & D'Orb.).

Four ♂s, 1 ♀. Pichincha and Papallacta, Western and Eastern Ecuador. Solitary in habits, and frequenting open situations.

197. ELAINEA PLACENS (Scl.).

A single male from Intag.

198. LEGATUS ALBICOLLIS (Vieill.).

One ♂. Santo Domingo, West Ecuador. Scarce.

199. MYIOZETETES CAYENNENSIS (Linn.).

Five ♂s, 3 ♀s. Common in the clearing during the first week of our stay at Santo Domingo, but after that we did not see any. This species seemed to keep entirely to the banana-plantations.

200. MYIOZETETES GRANADENSIS (Lawr.).

Three ♂s, 1 ♀, from near the mouth of the Coca, Upper Rio Napo. Common in isolated trees in the clearings around the Indian huts. Always found in open situations, and seemingly more numerous during the hot hours of mid-day. It has the same habits as *Tyrannus melancholicus*.

201. RHYNCHOCYCLUS PERUVIANUS Tacz.

Rhynchocyclus peruvianus Scl. Cat. B. xiv. p. 169.

One male. San Nicolas. This single example flew into the hut at night, attracted by the lamp-light.

202. PITANGUS SULPHURATUS (Linn.).

A male, shot on the Coca, Upper Rio Napo. Probably not rare, but, like *Myiozetetes granadensis*, very local in these parts.

203. Myiodynastes chrysocephalus (Tsch.).

A male from Gualea, Western Ecuador.

204. Megarhynchus pitangua (Linn.).

A male from Gualea.

205. Myiobius cinnamomeus (Lafr. & D'Orb.).

Three ♂s, 3 ♀s, 1 ♂ jr. Papallacta, Eastern Andes, 11,500 feet. Our seven specimens were all shot on the morning of Feb. 10th, when they must have been changing their feeding-ground, for we did not come across any more of them during the whole of our stay there.

206. Myiobius ornatus (Lafr.).

Eight ♂s, 3 ♀s, 1 ♂ jr. Santo Domingo and Gualea. This species inhabits the dense forests, and was common at the former place in trees that were thickly covered with creepers. I never saw it in the open clearings.

207. Myiobius flavicans (Scl.).

Three ♂s, 1 ♀. Pichincha and Papallacta, Western and Eastern Andes, at altitudes of from 8000 to 11,500 feet.

208. Myiobius pulcher Scl.

Five ♂s. Gualea and Nanegal, Western Ecuador. This is another species which lives chiefly among the dense creepers that so heavily clothe the trunks of most of the forest-trees.

209. Myiobius villosus (Scl.).

Myiobius villosus Scl. Cat. B. xiv. p. 201.

One male, Gualea. I should think it doubtful whether one of the types of this species (as stated in the Brit. Mus. Cat.) came from the Rio Napo, Eastern Ecuador.

210. Pyrocephalus rubineus (Bodd.).

Eight ♂s, 3 ♀s, 2 ♂s jr. Popayán, Colombia, 5600 feet; Ibarra, North Ecuador, 6600 feet; and the Chillo Valley, near Quito, about 7000 feet. We first met with this widely distributed bird on the higher Western Andes of Colombia at the back of Buenaventura. From Cali it was exceedingly common throughout the Cauca Valley down to Popayán, but thence southward we did not see another example until we reached the hot sandy valley of the Chota, in Northern Ecuador; then again in the Chillo Valley it was fairly numerous, especially around the village of Tumbaco.

The birds frequent open situations and (with the exception of the neighbourhood of Popayán) sandy soil. With crest erect they sit silently waiting for passing insects, which they take on the wing, returning to the same twig with graceful evolutions. Local name in Colombia "Titurivi."

211. Contopus borealis (Sw.).

Two ♂s. Gualea, Western Ecuador.

212. Contopus ardesiacus (Lafr.).

Two ♂s, 1 ♀, from Gualea, Western Ecuador, and 2 ♀s from Baeza, Eastern Ecuador. The latter differ somewhat from those from the Pacific side in being much lighter on the lower parts of the breast and vent, and in having the wing-coverts edged with light brown.

213. Myiarchus nigriceps Scl.

Five ♂s, 2 ♀s. Intag and Gualea, West Ecuador. Fairly numerous. The females have the under wing-coverts brownish yellow.

214. Myiarchus ferox (Gm.).

One male from Archidona, Eastern Ecuador.

215. Tyrannus pipiri (Vieill.).

One male from Gualea. Iris brownish red.

216. Tyrannus melancholicus (Vieill.).

Six ♂s, 2 ♂s jr., 3 ♀s. Popayán, Colombia, and Santo Domingo, Western Ecuador. Very common throughout the whole of the Cauca Valley up to altitudes of 6000 feet, where it is often called "Toreador." In Ecuador it is more local, and may be common in one place though not seen at all in a similar spot only a few miles away. Its favourite resort is pasture-land sparsely dotted with trees.

The young have the wing-coverts and tail edged with brown, and the throat much lighter than the adult birds.

217. Milvulus tyrannus (Linn.).

This is another bird exceedingly common throughout the Cauca Valley, and is locally called "Tijeretta." We first met with it at an altitude of about 5000 feet on the western side of the Andes on the road to Cali. We never saw it anywhere south of Popayán, and nowhere at all in Ecuador. It always settled on the topmost twigs of the hedges, low trees, or bushes, and perhaps still more generally low down near the ground on any plants growing in the meadows. It fed exclusively on insects, chiefly on the small moths which were so abundant among the grass. When we were leaving Popayán in June, I noticed that the birds were beginning to collect in flocks, and flew at a great altitude in the air.

Fam. PIPRIDÆ.

218. Masius chrysopterus (Lafr.).

Two ♂s, 1 ♀. Baeza. This species is confined to the eastern side of the Eastern Andes, and did not appear to be so numerous as *M. coronulatus* of the Western Andes. In March we found it in pairs, frequenting the lower and thicker vegetation. It utters continuously a sharp note resembling the sound produced by two pebbles knocked together. The legs, feet, and mandible are dark red.

219. Masius coronulatus Scl.

Four ♂s, 2 ♂s jr., 2 ♀s. Canzacota, Gualea, and Intag, Western Andes. Legs and feet dark red.

220. Pipra filicauda Spix.

Two males from Archidona, Eastern Ecuador. Both were met with alone in the clearings around the Indian huts, going from bush to bush with a low jerky flight.

221. Pipra auricapilla Licht.

One male from the Coca River, Upper Rio Napo, in June.

222. Pipra isidori (Scl.).

One male and one female from Baeza, Eastern Ecuador.

223. PIPRA LEUCOCILLA Linn.

Two males from Baeza. Both were shot in the forests.

224. MACHÆROPTERUS DELICIOSUS Scl.

Six ♂s ad., 2 ♂s jr., 2 ♀s. Gualea, Intag, and Mindo, West Ecuador. The young males differ from the females in having reddish throats. Local name "*Ala hueso.*"

225. CHIROMACHÆRIS MANACUS (Linn.).

Two ♂s, 1 ♀. Archidona, East Ecuador. I saw a male dancing around a female with its throat much distended, but the only sound I could hear was a curious noise produced, I believe, by a rapid motion of the wings. Legs and feet yellow, claws black.

Fam. COTINGIDÆ.

226. TITYRA CAYANA (Linn.).

1 ♂, 2 ♀s. Rio Suno and Rio Coca, Upper Napo. In May a pair of these birds had a nest at the mouth of the Suno in a hole in a dead tree standing in the clearing and about 50 feet from the ground. They seemed to feed their young entirely on beetles and large grubs. We shot the male bird one day as he was going to the nest, but the next day another male made its appearance and chased the female about, ending by helping her to rear the young. After two days we shot the female and took the nest of five young, two of which we successfully reared. There was a remarkable difference in the sizes of these young birds. Bare skin around the eyes purplish red, base of bill the same colour, tip black.

227. TITYRA SEMIFASCIATA (Spix).

One ♂, 1 ♀. Coca, Upper Napo, Eastern Ecuador. Bare skin around the eyes bluish red. Base of bill yellowish, tip reddish grey.

228. TITYRA PERSONATA (Jard. et Selb.).

One male from Santo Domingo, West Ecuador. Bare skin round the eyes dark red, base of bill dark red with a bluish tinge, tip of bill black. Iris deep yellow. Legs and feet black. The birds were scarce in October, but I was told that they were more numerous in May and June. They frequent the open clearings, sitting on the tops of the highest branches of the fruit-trees, and catch their insect-prey on the wing.

229. Tityra inquisitor (Licht.).

Tityra inquisitor Scl. Cat. B. xiv. p. 331.

One female shot on the roof of an Indian hut at Archidona. Iris grey. The stomach contained remains of beetles and grasshoppers. I had noticed this bird about for several evenings until it was dark, catching insects on the wing.

230. Hadrostomus homochrous Scl.

One ♂, 3 ♀s. Santo Domingo and Guanacillo. This is a frequenter of the forest.

231. Hadrostomus minor (Less.).

One ♂ ad., 1 ♂ jr., 2 ♀s. Archidona, Eastern Ecuador. Found in the clearings among the thick bushes in the vicinity of the Indians' huts.

232. Pachyrhamphus spodiurus (Scl.).

One ♂, 2 ♀s. Shot in the forest about a day's walk west of Santo Domingo, where we met with a small flock of about eight.

233. Pachyrhamphus niger Spix.

One male from Archidona.

234. Pachyrhamphus albo-griseus Scl.

One ♂, 2 ♀s, from Archidona. Our three examples were all shot along the banks of the river which runs through this village.

235. Pachyrhamphus atricapillus (Gm.).

One pair also from Archidona, shot among the bushes near our hut. I believe that we found all the members of this genus in pairs.

236. Pachyrhamphus versicolor (Hartl.).

Two ♂s, 4 ♀s, from Intag and the neighbourhood, West Ecuador.

237. Lathria fusco-cinerea (Lafr.).

One male from Baeza (5500 feet), Eastern Andes. Shot in the clearing. Evidently not numerous there, for we only saw one example during a month's stay.

238. Lathria cinerea (Vieill.).

Lathria cinerea Scl. Cat. B. xiv. p. 352.

Two ♂s, 2 ♀s. One pair was shot at a deserted Indian village on the upper reaches of the Suyano, Rio Napo, and the other pair at a Záparo village away in the forest somewhere opposite the mouth of the Coca. These birds frequent the small clearings around the huts, and I think I never noticed more than one pair in each clearing and seldom a clearing without a pair. In the early mornings and late evenings they sit on the tops of the bushes uttering their loud but short mournful strain. The notes evidently resemble some words in the Záparå language, for these Indians regard the birds with superstitious awe, and when we shot a pair they plainly showed their annoyance and it caused quite a disturbance. Fortunately we were leaving the neighbourhood the next day. When I started to skin the birds the Indians left the hut, no doubt thinking that something dreadful would happen.

239. Rupicola peruviana (Lath.).

Six males were shot on the eastern side of the Eastern Andes a little below Baeza, at an altitude of about 4000 feet, on the trail to Archidona. We met with them singly in the high trees near the banks of the rivers. It is hard to believe that these birds are difficult to detect among the foliage, when one considers their size and the remarkable brilliancy of their plumage, but such is the case. This form is confined solely to the Amazonian side of the Andes, and I imagine it to be rather scarcer than *R. sanguinolenta* of the Pacific side. Certain tribes of Indians who live on the headwaters of the Napo make excursions to the mountain-forests to shoot these birds, as their skins are in great demand by them for decorating their persons and ornamenting their weapons. They also consider the flesh a delicacy, but we found it tasteless and tough. The skin is yellow and partakes of the colour of the feathers. It is perhaps the toughest skin of any bird I know. Unlike *R. sanguinolenta*, the plumage of this species fades rapidly after death, and conveys but little idea of the wonderful shade that it has in life. No females were met with by us.

240. Rupicola sanguinolenta Gould.

We shot fourteen males at Gualea in August and at Milligalli in September, at altitudes of from 4000 to 6000 feet, on the western side of the Andes, when they were in perfect plumage. We saw females on several occasions, but always in places where, had we shot them, we could not have recovered them. The habit these birds have of crouching down renders the females with their duller colouring less conspicuous. Their chief place of resort at Milligalli during certain hours of the day was along the sides of a narrow river with precipitous rocky sides, more or less covered with overhanging flowering bushes; and here, where the sunlight fell in strong contrasts, the Cocks-of-the-Rock sat motionless among the vegetation. Unless one saw them settle or knew that this was their haunt, it was easy to pass them by unobserved. They fed on the hard berries of a bush which grows freely by the river, but to what family it belongs I am unable to say. Opposite to the one hut which constitutes Milligalli rise perpendicular cliffs, and on the ledges where small plants grow this species builds its nest. I was told that the nesting-season is in May and June, and that prior to that time the loud harsh call of the male birds is a familiar sound in the early mornings, when they assemble to choose their mates and indulge in their curious antics. These assemblies, however, are not solely confined to the breeding-season, for in August, near Gualea, we found a spot where we were able to watch their proceedings unobserved for several mornings in succession. It was on a broad flat ledge of rock overhanging a steep bank well screened by vegetation. Between 7 and 8 A.M. from ten to seventeen birds, mostly old and young males, would gather together. The majority of them huddled together under the bank, while one went through his antics of running backwards and forwards along the ledge with his back arched, tail spread out, and beak held down close to the ground. After doing this several times he would throw his head back, and spreading out his wings so that the tips touched the ground, make several gyrations, ending by leaping into the air and jerking his head forward much after the manner of a Hoopoe. Sometimes two birds would do this together, and when they leapt into the air facing each other they appeared to strike each other with their feet. The ground where they held these gatherings was worn quite bare and smooth.

These birds are local, and are to be met with only at certain places on the Pacific side, and not continuously all along the heights at the same altitude. In life the bill, legs, and feet are only a trifle lighter in colour than the plumage. Local name "Gallo de las Peñas." In January 1899 I sent a native to Milligalli to try and get me some females, but he was unsuccessful, and brought me only a few males in heavy moult.

241. PIPREOLA RIEFFERI (Boiss.).

One male from Mindo, West Ecuador.

242. PIPREOLA JUCUNDA Scl.

One male from Nanegal, West Ecuador. Shot in the thickest part of the forest, as were all other members of this genus we came across.

243. PIPREOLA LUBOMIRSKII (Tacz.).

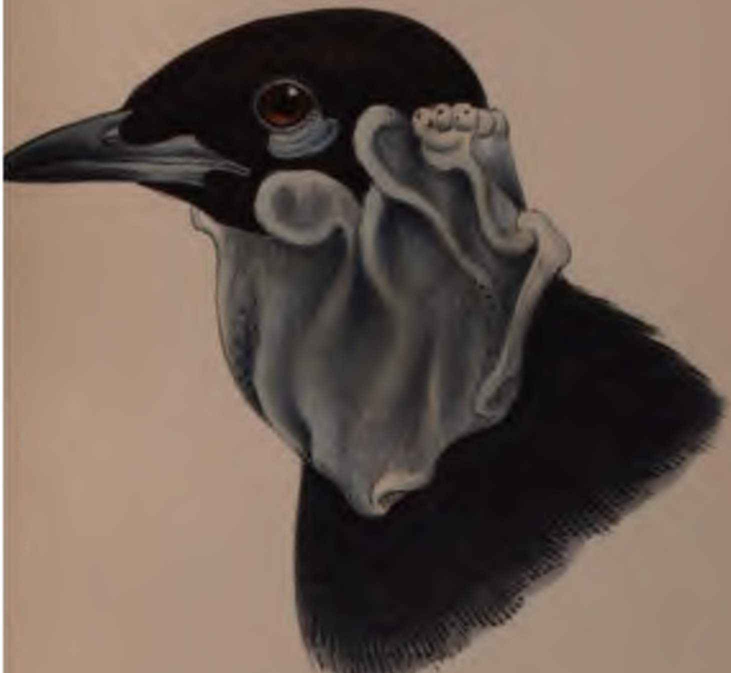
Pipreola lubomirskii Scl. Cat. B. xiv. p. 380.

Four ♂ s and 2 ♀ s of this rare bird were obtained at Baeza, East Ecuador. For four days in succession we shot a male on the same tree and on the fifth day the two females. They were feeding on a small black berry.

244. AMPELIO ARCUATUS Lafr.

Five ♂ s, 4 ♀ s, 3 ♂ s jr., from Mindo, near Intag, and Gualea, West Ecuador, and from Baeza, East Ecuador. This species was fairly numerous among the lower growth of the forests when certain berries were ripe. The two examples from Baeza are shorter in the wing than those from the western

Ibis 1901. Pl. XIV.



Mintern Bro

J.G.K. [illegible] del. et lith.

HEAD OF GYMNODERUS FŒTIDUS, AD.

side, otherwise they do not vary. Bill, legs, and feet coral-red.

245. AMPELIO CINCTUS (Tsch.).

Two ♂s, 1 ♀, from Santo Domingo. Iris pale yellow. This species is more solitary in its habits than the preceding. It also frequents higher trees, and as it is more difficult to get at it appears to be less numerous. It does not frequent a higher altitude than 1500 feet.

246. HELIOCHERA RUBROCRISTATA (Lafr. & D'Orb.).

A large series from both Western and Eastern Ecuador at altitudes between 10,000 and 12,000 feet. The birds frequent bushes and low trees in flocks of about a dozen, feeding entirely on berries. Although they were numerous on Pichincha we never secured a female there, and only two at Papallacta, where they were still more plentiful. Iris scarlet.

247. COTINGA MAYNANA (Linn.).

Two males from the Upper Napo. They mostly frequent the trees along the river-banks. They appear to be not at all common on this river, for all the Indian tribes prize their bright plumage highly for ornamenting their persons and weapons, and for this reason relentlessly pursue them.

248. GYMNODERUS FŒTIDUS[*]. (Plate XIV.)

Gymnoderus fœtidus (Linn.): Scl. Cat. B. xiv. p. 59.

A single male from the Rio Coca, Upper Napo. It was shot in a large tree on the banks of the river, where it was feeding in the company of various kinds of Toucans. The naked skin on the neck was of such beautiful colours, ranging from bright cobalt-blue to pure white, and hung in such curious folds, that Mr. Hamilton thought it best to

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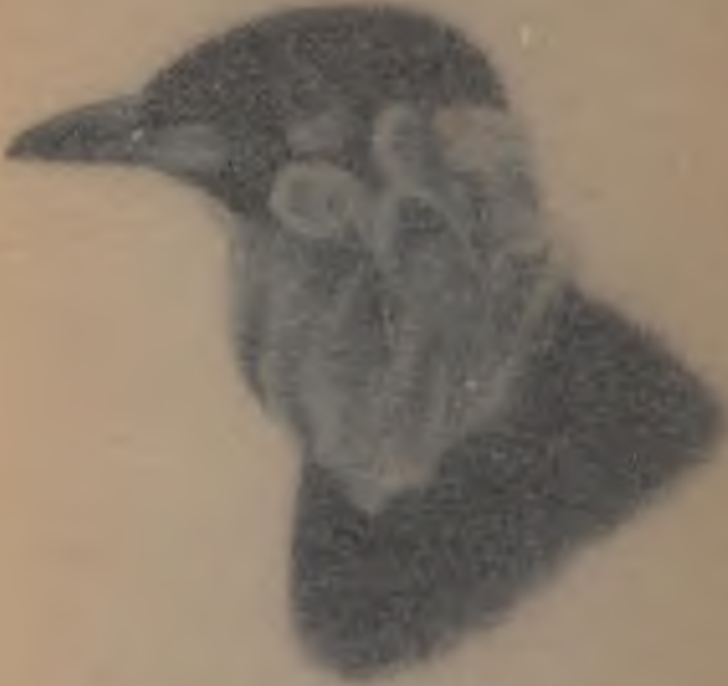
[*] [As has been already stated (Bull. B. O. C. x. p. lix), Sclater was so struck by the strange appearance of this specimen that at first he thought it must belong to a new species. But after examining all other available skins, it was found that some of them presented an intermediate appearance, and he finally came to the conclusion that the present example was merely a fully adult male of *G. fœtidus*. The Plate has been drawn and coloured from Mr. Hamilton's sketch taken from the freshly-killed bird.—EDD.]



[illegible]

[illegible]

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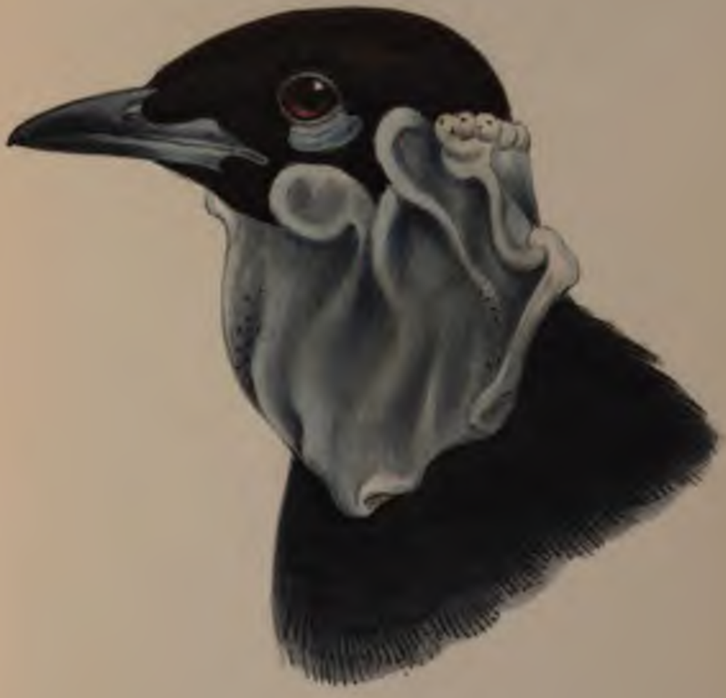
side, otherwise they do not vary. Bill, [illegible]

Ibis 1901. Pl. XIV.



J. G. Keulemans del. et lith.

Mintern Bros. imp.

HEAD OF GYMNODERUS FŒTIDUS, AD.

make a water-colour sketch of the head before he skinned it. The whole plumage had a bloom on it similar to that on a plum, which shook off like the powder from a cockatoo's feathers. Iris dark crimson, legs and feet leaden grey. Indian name "Ushqui paua."

249. CEPHALOPTERUS PENDULIGER Scl.

Two males and two females from the neighbourhood of Santo Domingo on the Pacific side. Around that locality the birds must have been fairly numerous at certain seasons, for we ourselves saw them on several occasions out of range. Also in the huts of the Indians I saw some plucked ready for the pot, and from them I secured a large bunch of the pendulous throat-feathers. All those that we shot or saw were in the gloomiest parts of the forests and generally in the tops of the highest trees, while only on one occasion did we see a pair together. They fed on the large fruits of a species of palm of no great height, and while they were feeding in the early morning we were able to secure our specimens by concealing ourselves in the thick bushes at the foot of the tree. The fruits, which they swallowed whole, resembled a hard green date and were quite two inches in length. In repose, and when flying, they carry the long wattle drawn up tightly to the chest: it consists of ring after ring of feathers, all beautifully fitting into one another and forming a thick tassel. The pair we saw together were copulating. The male bird jumped about from branch to branch in front of the female, with his throat (as it appeared to me) very considerably distended. His crest was very full and thick and spread out all around his head. Occasionally he gave utterance to a prolonged grunt, and as he did so the throat-wattle was lowered to its fullest length. I was told by the natives that the nest was in the holes of trees. The skin is tough and coarse, and the flesh of a very dark colour. These birds require a good deal of shot to kill them outright. Local name "Pajaro toro" or "Toro pisco," which both mean Bull-bird—"Pisco" being the Quichua for bird. We only once saw the Eastern species (*C. ornatus*), on the banks of the Rio Cosanga below Baeza.

XLVI.—*Description des trois Espèces nouvelles d'Oiseaux du Pérou du Muséum Branicki.* Par le Comte Hans von Berlepsch et Jean Stolzmann.

(Plate XV.)

1. Chlorochrysa hedwigæ, sp. n. (Plate XV.)

Splendide gramineo-viridis, dorso inferiore obscure glauco-viridi, fascia uropygii e plumis rigidis saturate aurantio-rubra, fascicula magna e plumis brevibus et rigidis ad latera colli corallino-rubra; gula, pectore plagaque hinc inde abdominis medii pulchre violaceo-cyaneis, macula exigua pilei medii pallide stramineo-flava; rostro pedibusque nigris. Long. alæ 72·5, caudæ 46·5, tarsi 19·5 mill.

Obs. A *C. calliparæa* et *C. bourcieri* fascicula e plumis rigidis ad latera colli magna pulchre corallino-rubra nec aurantio-brunnea, necnon gula, pectore, abdomineque medio violaceo-cyaneis (nec gula nigra, nec pectore viridi) primo visu distinguenda.

Hab. in Peruvia orientali-meridionali: circum Huaynapata, regionis Marcapata.

Nous nous permettons de dédier cette belle espèce, qui est très distincte des espèces connues du genre *Chlorochrysa*, à Mme. la Comtesse Hedwige Branicka, mère de Xavier Branicki.

La *C. hedwigæ* se distingue au premier coup d'œil de la *C. calliparæa* et de la *C. bourcieri* par la présence de deux très grands fascicules très étendus de plumes rigides sur chaque côté du col inférieur, qui sont d'un rouge de corail au lieu d'un brun doré. Ces fascicules sont situés aux côtés de la base du col, tandis que chez les autres espèces ils couvrent une partie des côtés de la tête. La couleur et la structure des plumes de ces fascicules rappelle celles des plumes au col supérieur de la *Calliste festiva* du Brésil.

La gorge, la poitrine, ainsi qu'une bande s'étendant le long du milieu de l'abdomen, sont d'un bleu violacé vif ou couleur d'outremer, tandis que chez les autres espèces la gorge est noire et le haut de la poitrine est d'un vert bleuâtre à son milieu.

Le rouge du croupion est couleur de feu plus clair que celui des fascicules du col, mais plus vif et moins orangé que sur le croupion des autres espèces.

La tache jaunâtre du pileum est plus petite et beaucoup plus pâle, d'un jaune paille au lieu d'un jaune orangé.

Le bleu verdâtre du dos inférieur est beaucoup plus foncé.

Les tectrices sus-caudales les plus longues, les sous-caudales, les côtés de la tête et le front sont d'un vert pré pur au lieu d'un vert bleuâtre.

M. Jean Kalinowski a envoyé onze individus de cette superbe espèce.

2. PHLOGOPHILUS HARTERTI, sp. n.

Affinis *P. hemileucuro*, sed multo minor, corpore subtus rufescenti-albo, gula corporisque lateribus rufescentioribus, pectore abdomineque medio albescentioribus; rectricibus—duabus mediis viridibus exceptis—albis vitta lata anteapicali obliqua æneo-nigra transfasciatis, apicibus rufescente tinctis; corpore supra obscure cyanescenti-viridi, rectricibus duabus mediis glauco-viridibus apicibus nigricantibus; rostro gracili nigro, mandibula dimidio basali brunnescente. Long. alæ 45, caudæ 26·5 mill.

Obs. A *P. hemileucuro* crassitie multo minore, corpore subtus rufescente, gulæ maculis indistinctis rufescentibus nec definitis viridibus, necnon pictura caudæ distinguendus.

Hab. Circum Huaynapata, regionis Marcapata, Peruviæ meridionalis-orientalis.

La femelle unique recueillie par M. Kalinowski appartient sans doute à une nouvelle espèce du genre *Phlogophilus* fort différente du *P. hemileucurus.* Peut-être que le mâle, si nous le connaissions, serait encore plus distinct par des détails de coloration.

L'espèce que nous venons de décrire et que nous dédions à Monsieur Ernst Hartert de Tring, à qui nous devons une monographie excellente des Trochilidés, est beaucoup plus petite que le *P. hemileucurus.*

Les parties inférieures du corps sont d'une teinte roussâtre pâle plus vive sur la gorge, coupée de certaines taches roussâtres peu marquées, il en est de même aux côtés du corps. La poitrine et le milieu du ventre sont blanchâtres, fondues d'une teinte roussâtre. Il y a de petites taches verdâtres peu marquées aux côtés de la gorge (région mystacale et sous-auriculaire) tandis que chez le *P. hemileucurus* il y a de grandes taches bien marquées d'un vert à reflets métalliques sur toute la gorge et une large bande verte interrompue au milieu sur la poitrine. Le reste des parties inférieures du corps chez le *P. hemileucurus* est d'un blanc pur.

Les parties supérieures du corps sont d'un vert légèrement plus foncé un peu plus bleuâtre que chez le *P. hemileucurus*. La coloration des rectrices externes diffère un peu : La bande d'un bleu d'acier qui se manifeste sur toutes les rectrices, sauf les deux médianes, est beaucoup plus étroite, plus oblique et placée à l'extrémité de la plume. Par conséquent la partie basale blanche est plus étendue se prolongeant jusque vers la moitié de la plume. Les extrémités blanches sont un peu plus courtes et peintes de roux, ce qui n'est pas le cas chez l'autre espèce.

3. SIPTORNIS PUNENSIS, sp. nov.

Affinis *S. graminicolæ*, sed differt rectricibus tribus utrinque externis in dimidio basali (vel maxima ex parte) nigris, parte apicali solummodo rufo-brunneis, nec unicoloribus rufo-brunneis; remigibus primariis in dimidio basali pogonii externi obscurius rufo-brunneis. Long. alæ 76, caudæ 92·5, tarsi 24·5 mill.

Hab. Circum Puno, Peruviæ meridionalis-orientalis (alt. 12,600 pedum).

M. Kalinowski a recueilli un mâle et trois femelles à Puno les 13 et 15 avril et le 15 juin, 1896.

Cette forme nouvelle est presque intermédiaire entre la *S. graminicola* Scl. de Junin * et la *S. anthoides* du Chili. Elle ne diffère de la première que par la coloration des trois paires de rectrices externes qui sont noirâtres, à bouts d'un roux-brunâtre.

La teinte noire de la base des rectrices s'étend de plus en plus des externes à la troisième, tandis que les extrémités

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* Berlepsch en a reçu des individus recueillis par M. O. Garlepp aux environs de Cauramarca près de Cuzco.

roux-brunâtres deviennent de plus en plus courtes dans la même direction.

La partie basale des barbes externes des rémiges primaires est d'un roux-brun plus sombre ou moins clair que chez la *S. graminicola.* Chez cette dernière les trois paires de rectrices externes sont d'un roux-brun ou canelle uniforme jusqu'à la base. Seules les tiges et une bordure étroite sur chaque barbe de la troisième rectrice sont noirâtres. La quatrième rectrice présente une large bande d'un roux-brun sur la barbe interne, ce qui n'est pas le cas chez la *S. punensis.* Il paraît aussi que la *S. punensis* aurait des dimensions un peu plus fortes.

Chez la *S. anthoides* le dessin des rectrices externes est presque comme chez la *S. punensis,* mais les extrémités sont d'un roux plus clair. La *S. anthoides* se distingue aussi par la strie sourcilière et le milieu de l'abdomen, qui sont blanchâtres au lieu d'être roussâtres, etc.

XLVII.—*Notices of recent Ornithological Publications.*

[Continued from p. 515.]

116. *'Annals of Scottish Natural History.'*

[The Annals of Scottish Natural History. No. 37, January 1901; and No. 38, April 1901.]

Messrs. W. Eagle Clarke and T. G. Laidlaw open the year with some valuable notes on the migratory birds which visit Southern Shetland in autumn; and Mr. William Evans gives us the result of his investigations during the last two seasons on *Motacilla alba* in the Forth area. Some remarks by Saunders on the Great Shearwater (*Puffinus gravis*) are intended to call attention to the observations of Capt. Collins in the Bay of Fundy, which appear to have been overlooked. To the April number, Mr. Laidlaw contributes the first instalment of his Report on the movements and occurrences of birds in Scotland during 1900; and it is clearly shown that the interest taken by keepers at light-stations as well as by inland observers is increasing in a highly satisfactory manner.

In Mr. Robert Service's notes from the Solway district there occurs a very remarkable record of the capture of a Honey-Buzzard (*Pernis apivorus*) on January 17th of this year, and, as the narrator examined the bird alive, there can be no doubt about the identification. Among the minor notes, the most interesting is the record by Mr. W. L. MacGillivray of the occurrence of the Barred Warbler (*Sylvia nisoria*) at Barra, on October 29th last, the specimen having been very properly presented to the Edinburgh Museum: it is the third recorded for Scotland.—H. S.

117. '*The Auk.*'

[The Auk. A Quarterly Journal of Ornithology. Vol. xviii. Nos. 1 and 2, January and April 1901.]

The January number of our contemporary begins with an interesting obituarial notice, with portrait, of our esteemed Foreign Member, Elliott Coues, by Mr. D. G. Elliot; and this is followed by a similar notice of George B. Sennett, by Professor J. A. Allen. Four well-marked island-forms from San Miguel Island, one of the Pearl group in the Bay of Panama, are described as new species by Mr. Outram Bangs. Mr. J. H. Fleming contributes a somewhat lengthy paper, with a map, on the birds of Parry Sound and Muskoka, Ontario; while Mr. E. W. Nelson describes five new species of birds from "Mexico," which seems to be used as a geographical expression for anything between Tepic, Guatemala, and Tabasco. A lengthy and valuable paper by Dr. Jonathan Dwight, Jr., on the Sequence of Moults and Plumages of the Laridæ, is followed by an admirable report of the American Committee for Bird-Protection, the portion by Mr. William Dutcher on the special protection accorded to Gulls and Terns, due to certain funds placed at the disposal of the Committee by the benevolence of Mr. Abbott H. Thayer, being particularly noteworthy. As this statement extends over many pages, we cannot even give an abstract of it, and must content ourselves with saying that the results have been eminently satisfactory. The protection has reference chiefly to the Atlantic coast between New England and Virginia, but we understand that strenuous efforts are being made to enforce similar measures along the shores of Louisiana and Florida.

In the issue for April, besides papers of local interest, Mr. W. Brewster records the occurrences of the Wigeon (*Mareca penelope*) and the Teal (*Querquedula crecca*) in Massachusetts; while Mr. J. L. Bonhote sends a list of the birds obtained at the Cay Lobos lighthouse, Bahamas. Mr. O. Widmann's account of a visit to Audubon's birthplace appeals to naturalists on both sides of the water. A study of the genus *Macrorhamphus*, with a map shewing breeding-ranges and the lines of migration of *M. griseus* and *M. g. scolopaceus*, shows conscientious work on the part of Mr. R. H. Howe, jr.; while Mr. Henshaw makes some instructive remarks upon "Birds of Prey as Ocean Waifs," with special reference to the Short-eared Owl (*Asio otus*) in the Hawaiian Islands where it has been a resident sufficiently long to obtain an important place in the mythology of the natives, though not long enough to occasion perceptible variation from the mainland type. In a paper on "The Pterylosis of *Podargus*, with notes on the Pterylography of the Caprimulgi," Mr. H. Lyman Clark lays stress upon the Strigine affinities displayed by these birds and their remoteness from the Cypselidæ. Prof. J. Allen's republication (No. 2) of descriptions of new species and subspecies of North American birds will doubtless receive due attention from the Recorder of 'Aves.' Dr. L. Stejneger's article on the Wheatears of North America has been already noticed (*v. s.* p. 513). Mr. A. W. Anthony states from numerous observations, when taking his "trick" at the wheel, that the Albatross *does* fly in the wake of ships, even on dark nights; and after a lapse of thirty-five years the writer of this notice is pleased to have his experiences (Ibis, 1866, p. 125) confirmed by one who is a seaman as well as an ornithologist. We are sorry to learn from an eye-witness, Mr. H. K. Job, that the Magdalen Islands, in the Gulf of St. Lawrence, are not protected by the Canadian authorities, and that after the fishermen had taken everything they could reach, they "fired raking shots again and again into the masses of birds upon their nests, mowing them down like grass, to leave them there dead or dying—a most horrible and pathetic sight." From Mr. Henshaw come records of the first occurrences of the Pectoral Sandpiper (*Tringa maculata*) and the Grey Plover (*Squatarola helvetica*) in the Hawaiian Islands, with notes on other rare visitants to that group. Mr. Walter Faxon's remarks on early editions of Wilson's Ornithology will interest bibliographers; and the decease of Mr. George Boardman at the ripe age 83 will cause a pang to several of our older ornithologists. We would also express our sincere sympathy with Mr. R. Ridgway, of Washington, on the loss he has sustained by the death of his promising son, Mr. Audubon Whelock Ridgway.—H. S.

118. *Berg's Critical Remarks on Chilian Birds.*

[Notas Criticas referentes á las contribuciones al Estudio de las Aves Chilenas de Federico Albert. Por Carlos Berg. An. Soc. Cientif. Argentina, li. pp. 55–61, 1901.]

Señor Berg finds great fault, as well he may, with the synonymy and identifications used by Señor Albert in his 'Contribuciones al Estudio de las Aves Chilenas,' which have been recently published in the Annals of the University of Chili, and especially points out grave errors in his treatment of the Caprimulgidæ and Ardeidæ of that country. But we cannot agree with Señor Berg that everyone ought to call the "Rosy Spoonbill" *Ajaja ajaja*, and the Night-Heron *Nycticorax nycticorax*, for we do not ourselves recognise the obligations of the new system of tautonyms.

119. *Berg's Ornithological Notes.*

[Ornithologisches. Von Karl Berg. Comm. d. Mus. Nac. Buenos Aires, i. pp. 283-287, 1901.]

The author tells us, among other things, that the English Sparrow was introduced into Buenos Ayres in 1872 with the view of checking the ravages of a Psychid moth, *Œceticus platensis,* which was a great pest to the gardens there. Not only, however, has our Sparrow failed to do this, but it has become a great pest itself, and has almost exterminated the little bird (*Zonotrichia pileata*) that plays the part of the European Sparrow in most parts of South America.

Herr Berg also gives further evidence to show that the egg on which *Rhea nana* of Lydekker (see Revista Mus. La Plata, vi. p. 103) was established is only an abnormally small egg of *Rhea darwini.*

120. *Blanford on the Distribution of Indian Animals.*

[The Distribution of Vertebrate Animals in India, Ceylon, and Burma. By W. T. Blanford, LL.D., F.R.S. (Abstract.) Proc. Roy. Soc. lxvii. pp. 484–492.]

This is an abstract of a memoir, read before the Royal Society by one of our highest authorities on the subject to which it refers, and ultimately to be published in the 'Philosophical Transactions.' Dr. Blanford divides the whole area of which he treats into 19 "tracts," and states the conclusions arrived at after a review of their different faunas. He recognizes three subregions in the continental portion of the Indo-Malay or Oriental Region—namely, the Cisgangetic, Transgangetic, and Malayan.

121. *Campbell's 'Nests and Eggs of Australian Birds.'*

[Nests and Eggs of Australian Birds, including the geographical distribution of the species and popular observations thereupon. By Archibald James Campbell, Melbourne. With Maps, 28 Coloured Plates, and 131 Photographic Illustrations. Printed for the author by Pawson & Bailford, Sheffield. 2 vols. 8vo. 1901. Price £3 3*s*. net.]

We have received with great pleasure the two handsome and well illustrated volumes now before us, in which Mr. Campbell has recorded not only his own experiences but a summary of all that is as yet known of the Nests and Eggs of the Birds of Australia. It is stated that Gould had planned a book on the subject, and these volumes are appropriately dedicated to that great 'Birdman,' as he loved to call himself, and to his principal collector, Gilbert. They have a photographic print of Gould's likeness as a frontispiece to the first volume and one of the author to the second.

The arrangement and nomenclature of the present work are taken, with few exceptions, from the British Museum Catalogue, to which references are always given. We cannot, however, altogether approve of the vernacular names adopted, as it is not expedient to employ such well-known terms as "Tit," "Bell-bird," and "Tree-creeper" for Australian birds of quite different genera. References to previous authorities on the nesting and eggs of every species are also regularly added. The letterpress under each heading contains an account of the "Nest" and the "Eggs," besides "General Observations," which are full and well-written.

The first volume of Mr. Campbell's book concerns the Accipitres, Striges, and Passeres — comprising altogether 417 species; the second deals with all the remaining Orders, comprising 348 species: so that the total number of "Australian Birds," as here enumerated, is 765.

The letterpress is profusely illustrated by excellent uncoloured plates of the nests and eggs, prepared from photographs taken by the author and his friends. At the end of the second volume are twenty-seven coloured plates of eggs, of which we can likewise speak very favourably. In fact we may say that Mr. Campbell's work is of a high order of merit, and reflects great credit alike upon the author and the well-known firm who have produced it.

122. *Chapman on the Great Blue Heron of America.*

[A new race of the Great Blue Heron, with remarks on the status and range of *Ardea wardi*. By Frank M. Chapman. Bull. Amer. Mus. Nat. Hist. xiv. pp. 87–90, 1901.]

The author proposes to separate the form of *Ardea herodias* of the north-west coast-region of North America "from Victoria northward" as a new subspecies, under the title *A. h. fannini*. At the same time he points out that the resident representative of this Heron in Florida, which has been called *Ardea wardi*, is nothing more than a southern form of *A. herodias*, with which it intergrades, and that it should consequently be reduced to the rank of a subspecies, as *A. h. wardi.*

123. *De Vis on a new Parrot.*

[Description of a *Charmosinopsis.* By C. W. De Vis. Annals of the Queensland Museum, No. 5, p. 12, 1900.]

Mr. De Vis describes and figures *Charmosinopsis bella*, a new Lory from British New Guinea, based on six examples brought to Brisbane by Sir William Macgregor, lately Governor. The exact locality is "probably" the Wharton Range. The species is allied to *C. pulchella.*

124. *Finsch's Lists of the Birds in the Leyden Museum.*

[Zur Catalogisirung der ornithologischen Abtheilung von Dr. O. Finsch. II.–V. Notes Leyden Mus. xxii. pp. 129–161, 193–224.]

Dr. Finsch proceeds with his reviews of the specimens of birds in the Leyden Museum, and in these parts deals with the Steppe-Eagles, the South-sea Parrots, the Stonechats, and various genera of Indian Passerines. Of the Steppe-Eagles he allows 10 species, following Suschkin, who has lately carefully studied the full series at Leyden. "Damara-land" is a curious locality for *Aquila orientalis*, where a specimen is said to have been obtained by Andersson in 1862.

In discussing the *Pyrrhulopses* of the South Pacific, Dr. Finsch comes to the conclusion that *P. tabuensis* is not an introduced species in the Tonga-group, as has been supposed, but an indigen, the existence of which on Tongatabu and Eua was ascertained by Cook in 1773, though it may have since become extinct on the former island.

The Saxicolinæ, represented at Leyden by 191 examples of 19 species, are reviewed at some length.

Writing of the Passeres of various genera of the families Oriolidæ, Dicruridæ, Muscicapidæ, Sylviidæ, Timeliidæ, Zosteropidæ, and Nectariniidæ, contained in the Leyden Museum, Dr. Finsch institutes two new genera and three new species. The former are *Eugerygone* (for *Pseudogerygone rubra* Sharpe) and *Pseudoxenicus* (for *Micrura super-*

ciliaris Bp.); the latter are *Brachypodius baweanus* from Java and the Bavian Islands, *Cettia bivittata* from Timor, and *Malacocincla büttikoferi* from Borneo.

125. *Finsch on a new Fruit-Pigeon.*

[Ueber eine neue Treron-Art von den Kangean-Inseln von Dr. O. Finsch. Notes Leyden Mus. xxii. p. 162.]

Treron vordemani is a new species from the Kangean Islands. It has been referred by Mr. Vordeman to *T. griseicauda* of Java, but is distinct.

126. *Forbes on rare Birds in the Derby Museum.*

[Notes on some rare Birds in the Lord Derby Museum. By Henry O. Forbes. Bull. Liverp. Mus. iii. p. 61.]

Mr. Forbes writes on *Zebrilus pumilus*, a rare Bittern from Guiana, of which a plate is given, and on the unique specimen of *Porphyrio stanleyi*, supposed by some authors to be an albino of *Porphyrio melanonotus* (*cf.* B. M. Cat. xxiii. p. 205), a fact which Mr. Forbes says it is "difficult to bring oneself to believe." The "historical specimen" was brought to Europe by Banks, who accompanied Cook on his first voyage; it is supposed to have been obtained in New Zealand, but this is not certain.

127. *Hartert on the Birds of the Key Islands and of Ceram-Laut.*

[On the Birds of the Key and South-east Islands and of Ceram-Laut. By Ernst Hartert. Nov. Zool viii. p. 93.]

Mr. Hartert continues his review of the birds of these groups, the first part of which we have already mentioned (see above, p. 503). Fifty-five more species are added, which brings the total of the avifauna up to sixty-nine.

128 *Hartert on the Birds of Timor-Laut.*

[On a Collection of Birds from the Timor-Laut Islands. By Ernst Hartert. Nov. Zool. viii. p. 163.]

Mr. Kühn has furnished the Tring Museum with a fine series of 400 birds from the Tenimber or Timor-Laut Islands, which he visited in 1900–1, and we have here an account of the collection, prefaced by some interesting general remarks. Specimens of nearly all the birds peculiar to the group were obtained. They are referred to 63 species and subspecies, of which *Dicrurus kühni* and *Rallina tricolor victa* are characterized as new.

129. *Heathcote on the Birds of St. Kilda.*

[St. Kilda. By Norman Heathcote. 8vo. London, 1900. Pp. i–xiii & 1–229. Price 10*s.* 6*d.*, net.]

Mr. Heathcote's book on St. Kilda, though written chiefly to furnish a more trustworthy account of the character and nature of the people, and of the charms of the rock-scenery—not omitting the difficulty of access—contains a chapter of more than fifty pages on its birds. The author describes himself as being no ornithologist, but it seems to us that he has every reason to consider himself such, so far as his experiences go. It is true that he calls the Guillemot *Uria bruennichi*, more or less by accident, and is a little "shaky" in a few technical details, but he gives a singularly vivid account of the bird-life of this solitary island, which will be found much more interesting in the case of so small an area than a dry scientific treatise. There is an accurate map, while the illustrations are for the most part good, though the potato-like effect in that at p. 164 shows what a camera can do when it chooses.

130. *Hellmayr on the* Paridæ, Sittidæ, *and* Certhiidæ.

[Kritische Bemerkungen über die Paridæ, Sittidæ, und Certhiidæ. Von C. E. Hellmayr. J. f. O. 1901, pp. 169–190.]

The author, who is preparing a synopsis of these three families for the 'Tierreich,' gives us a series of useful notes on the genera and species from his study of them during the progress of his work. Under the Paridæ he places four subfamilies—the Regulinæ, Polioptilinæ, Parinæ, and Paradoxornithinæ. "*Penthornis*" is proposed as a new generic term for *Parus luzonensis* and *P. semilarvatus*, and *Ægithospiza* for *Parus fringillinus* Fisch. & Rchw. The name *Neositta* is suggested in place of *Sitella*, because it is alleged that Rafinesque in 1815 used *Sitella* as equivalent to *Sitta*. This change appears to us to be quite unnecessary, as Rafinesque did not define his name, which may be safely left in oblivion.

Herr Hellmayr considers *Salpornis emini* of Hartlaub as probably distinct from *S. salvadorii*, although Shelley and Sharpe agree in uniting these two supposed species. He has examined Hartlaub's type.

131. *Helms on the Food of Danish Owls.*

[Om nogle danske Uglers Gylp. Af O. Helms. Vidensk. Medd. fra den naturh. Foren. i Kjöbenhavn, 1901, pp. 55–65.]

The author has carefully examined a large number of the "castings" thrown up by individuals of the four ordinary species of Owls that inhabit Denmark—*Syrnium aluco*, *Athene noctua*, *Otus vulgaris*, and *Strix flammea*, and gives the contents of the castings in a series of tables. These shew that by far the greater portion of the Owls' food consists of small mammals (Insectivora and Rodentia), though remains of small birds (*Passer domesticus* &c.) are occasionally ejected.

132. *Jacobi on Biogeographical Distribution.*

[Lage und Form biogeographischer Gebiete. Von Dr. Arnold Jacobi. Zeitschr. d. Gesellsch. f. Erdkunde zu Berlin, xxxv. Heft 3, 1900.]

Dr. Arnold Jacobi's essay on Biogeographical Regions should be read by all students interested in the subject, although some of the conclusions at which he has arrived are not to be commended. On the whole he adopts the primary division of the globe into Arctogæa, Neogæa, and Notogæa, but makes three "Regions" out of the first, five out of the second, and two out of the third—thus raising the Regions to ten in number, and rating the Hawaiian Archipelago and New Zealand as of equal value to Africa and South America. Again, to get over the difficult question of the Nearctic Region, Dr. Jacobi divides it into two halves, assigning the northern half to Arctogæa and the southern to Neogæa under the hybrid name of the "Neoboreal Region." This would not tend to simplify matters, as we should thus find ourselves burdened with Tyrannidæ, Trochilidæ, and other purely Neogæan forms in Arctogæa.

Besides his chart of general distribution, the author gives us a second chart to illustrate the localities of the species of Jays (*Garrulus*) and Bullfinches (*Pyrrhula*).

133. *Le Souëf on the Birds of the Riverina District of New South Wales.*

[A Visit to the Riverina District, New South Wales. By D. Le Souëf. C.M.Z.S. Victorian Naturalist, xvii. No. 10, 1901.]

Mr. Le Souëf sends us a sketch of the bird-life of the Riverina District of New South Wales in a season when a copious rainfall had completely filled the Murray River and its adjacent lagoons. This event induced a large number of Ibises and other water-loving birds to resort there for breeding-purposes. A colony of Straw-necked Ibises was estimated to consist of at least 200,000 individuals. Spoonbills, Herons of several species, Cormorants, Ducks, Geese, Avocets, Stilts, and Cranes were likewise found nesting in the same district.

134. *Lorenz-Liburnau's History of Ornithology in Austria.*

[Geschichte der Zoologie in Osterreich von 1850 bis 1900. Vögel von Ludwig von Lorenz-Liburnau. Festschr. d. fünfzigjahr. bestandes d. k.k. zool.-bot. Ges. in Wien. 4to. Wien, 1901.]

Herr v. Lorenz contributes the ornithological portion to a history of the progress of Zoology in Austria and Hungary during the last fifty years. He divides this space of time into decennial periods, and reviews shortly the principal publications relating to Ornithology issued during each of them, sorting these according to the localities to which they refer and other subjects. The predominant figure in Ornithology in Austria during the past fifty years has certainly been August v. Pelzeln, of whom a lithographic portrait is given.

135. *Nelson on the Birds of Yorkshire.*

[The Birds of Yorkshire: commenced by Wm. Eagle Clarke, F.L.S., M.B.O.U., Museum of Science and Art, Edinburgh; and continued by Thomas H. Nelson, M.B.O.U., The Cliffe, Redcar. Trans. Yorks. Nat. Union, Part 24, May 1901.]

The species treated in this instalment of the 'Birds of Yorkshire' are the Rock-Thrush, the Hedge-Accentor, the Alpine Accentor, the Redbreast, the Nightingale, the White-spotted Blue-throat, and the Red-spotted Blue-throat. Apart from the details of migration, on which we are always glad to have Mr. Clarke's *dicta*, and references to notices of birds in the county by early writers, the most interesting article is that on the Nightingale, which shews that the species can hardly be said to have extended its range much in Yorkshire, but that previous records have often been ignored. We fancy, however, that we can still further extend the northern range of the Nightingale, unless our authors discredit the occurrence (stated on authority similar to that accepted) of the bird during the summer of 1893 near Whittingham, in Northumberland (Proc. Berwickshire Nat. Club, xiv. p. 202).

136. *Nisbett and Finn on the Kaleege Pheasants.*

[Notes on some Kalij Pheasants from the Kachin Hillls in the possession of the Bombay Natural History Society. By Capt. W. G. Nisbett and F. Finn. Journn. Bombay N. H. Soc. xiii. pp. 521–528.]

The immediate subject of this paper is a set of Pheasants of the genus *Gennæus* obtained by Capt Nisbett in the Kachin Hills, north of Bhamo, which are considered by the authors as "hybrids of various grades" between *G. horsfieldi* and *G. andersoni*. With the latter it is proposed to unite *G. rufipes* of Oates and *G. beli* of Oustalet.

A useful synoptic table of the seven species of the group is added.

137. *North on the Destruction of Birds in Australia.*

[The Destruction of Native Birds in New South Wales. By Alfred J. North, C.M.Z.S., Ornithologist. Rec. Austral. Mus. iv. pp. 17-21, 1901.]

We regret to find that, as in Europe and North America, the destruction of bird-life is proceeding at a great pace even in Australia. Rifle-birds and Bower-birds are in constant demand at Sydney for ladies' hats. Two hundred and fifty Lyre-birds (*Menura superba*) are reported to have been slaughtered in one locality for the sake of their tails. A Bird-Preservation Act passed in 1895 is "more honoured in the breach than in the observance." In the vicinity of the great cities Sparrows and Starlings are fast ousting the native birds, and in the immediate neighbourhood of Melbourne "hardly a single native bird is to be seen." Other active agents of destruction are "phosphorized oats," scattered about to destroy the rabbits, and domestic cats, introduced for the same purpose. We trust that Australians will take warning in time, and endeavour to find some remedy for this sad state of affairs.

138. *Oates's Catalogue of Birds' Eggs.*

[Catalogue of the Collection of Birds' Eggs in the British Museum. Vol. I. By Eugene W. Oates. London. Printed by Order of the Trustees. Pp. 452. 18 Plates. Price 25*s*.]

The first volume of the Catalogue of Birds'-eggs in the British Museum, to the progress of which we have referred on several occasions, is now published. It follows exactly the nomenclature and arrangement of the 'Hand-list,' and contains an account of the eggs of the Ratitæ and of the Carinatæ from the "Tinamifornes" up to the Lariformes—including altogether 520 species, the eggs of which are illustrated from 12,156 specimens. Under the head of each species, as named in the 'Hand-list,' are given the principal references relating to the eggs and the nesting. Then follows a description of the egg, and a list of the specimens, with localities and the mode of acquisition added; general remarks on the colour and shape of the eggs are also often given under the heads of the Genera, Orders, and other larger divisions.

In his "Introduction," Mr. Oates reviews the history of the great Collection of eggs from its commencement. It appears to have been begun in 1842, when the late D. W. Mitchell presented some eggs of British birds, chiefly from Cornwall. In 1850 the collection made during the voyage of the 'Rattlesnake' arrived, in 1852 that made in the course of the voyage of the 'Acheron,' and in 1871 the series collected during the Transit-of-Venus Expedition in Kerguelen.

But it was in 1885 that the two greatest acquisitions were made, by the presentation to the Trustees of the magnificent collection of Indian Eggs of Mr. Hume, and of the splendid series amassed in the cabinets of Messrs. Salvin and Godman, which was especially rich in specimens from America. In 1891 Mr. Howard Saunders presented his well-selected series of the eggs of the Laridæ, and in 1893 Seebohm made over his celebrated collection, chiefly of Palæarctic birds'-eggs, to the Nation. With all these and many other important additions, the British Museum now contains by far the most extensive and valuable collection of birds'-eggs in the world, numbering some 50,000 specimens.

The present volume is illustrated by a series of 18 excellent coloured plates, drawn by Mr. Grönwald. While we most heartily recognise the thoroughness and exactness with which the author of the present volume has fulfilled his difficult task, there can be no harm in expressing a wish that the "explanation" of these plates had been managed in a different way. The names of the species figured might well have been placed on the plates themselves, or at least on an opposite page, instead of being all run together at the commencement. Some of them also (*e. g.*, that of *Colymbus pacificus*, pl. xi. fig. 6) are wrongly numbered in the letterpress.

139. *Reichenow's 'Birds of Africa.'*

[Die Vögel Afrikas von Ant. Reichenow. Erster Band. Zweite Halfte. 4to. Neudamm, 1901. Pp. xcvii-civ, 321-708. Price 50s.]

Dr. Reichenow completes the first volume of his Birds of Africa by the issue of the present part (*cf.* above, p. 142), which carries on the subject to the end of the Strigidæ (according to the system which he follows). Thus this volume gives us an account of 560 species, belonging to 30 families.

We observe that even glaring faults of grammar are not corrected in the nomenclature adopted (e. g., *Aplopelia*) and that "homonyms" are in use throughout. The occurrence of *Balæniceps rex* on Lake Victoria (see above, p. 156) is apparently not credited (p. 357). *Balearica gibbericeps* is wisely reduced to the rank of a subspecies—is it even that?

140. *Rothschild and Hartert on Papuan Birds.*

[Notes on Papuan Birds. By the Hon. W. Rothschild, Ph.D., and Ernst Hartert. (Continued.) Nov. Zool. viii. p. 102.]

The authors continue their notes on the large series of Papuan birds in the Tring Museum, and discuss the Columbæ, Megapodidæ, Rallidæ, Limicolæ, and Alcedinidæ. The following new names are proposed:—*Ptilinopus gestroi kaporensis* (from Kapoor), *Syma torotoro meeki* (from British New Guinea), and *S. t. ochracea* (from the D'Entrecasteaux group). Some species, in our opinion well-marked, are reduced to subspecific rank—e. g., *Ptilopus bellus* and *P. johannis*, which surely should not be placed in the same category as the multitudinous races of *Macropygia*.

141. *Shufeldt on the Osteology of the Penguins.*

[Osteology of the Penguins. By Dr. R. W. Shufeldt, C.M.Z.S., M.A.O.U. Journ. Anat. Phys. xxxv. p. 390, 1901.]

The author having carefully consulted the writings of Watson, Coues, Newton, Milne-Edwards, Sclater, and others on the Spheniscidæ, and having studied the ample material in the U.S. National Museum, thinks it well to furnish in an article of some fourteen pages a compendium of our knowledge of the group up to the present time. The learned Doctor's good work is so well known that we are sure many will join with us in the wish that there had been a little less Watson and a little more Shufeldt, for there does not seem to be much in this useful compilation that is unfamiliar, except with regard to the second ramal foramen of the mandible and a few facts concerning the dorsal vertebræ and coracoid. The writer is more than ever convinced of the low morphological rank of the Impennes, and of the great difficulty in deciding upon their affinities. The skeleton of *Spheniscus demersus* is figured, as are also bones from the leg of *Aptenodytes* and *Eudyptes*.

142. *Shufeldt on* Scopus *and* Balæniceps.

[Notes on the Osteology of *Scopus umbretta* and *Balæniceps rex*. By R. W. Shufeldt, M.D., C.M.Z.S. Journ. Anat. Phys. xxxv. p. 405, 1901.]

As Dr. Shufeldt was unable to procure a specimen of *Balæniceps* for the purposes of this paper, he was obliged to rely for his facts concerning that species entirely on the memoir of W. K. Parker; but the detailed examination of an excellent mounted skeleton of *Scopus* (which he figures) has given him the opportunity of comparing the osteology of the two forms at considerable length, and of corroborating the views of Parker and Beddard as to their relationships. In the skull, the axial skeleton, and the appendicular skeleton, much greater affinity is shown to the Storks than to the Herons. A table of the author's classification of the Herodiones will be found in the paper noticed below.

143. *Shufeldt on the Herodiones.*

[Osteology of the Herodiones. By Dr. R. W. Shufeldt. Ann. Carnegie Mus. i. pp. 158-240, 1900.]

This illustrated memoir, though dated 1900 in the text, was evidently written after the two foregoing articles, and contains Dr. Shufeldt's final Classification of the Suborder, which is as follows:—

Suborder	*Superfamilies.*	*Families.*
Herodiones	Ibidoidea	Plataleidæ. Ibididæ.
	Ciconoidea	Ciconiidæ. Scopidæ.
	Balænicipitoidea	Balænicipidæ. Cancromidæ.
		Ardeidæ.

The work is a development of the "Osteological Studies of the Subfamily Ardeinæ" (chiefly concerned with *Ardea herodias*), published in various parts of the 'Journal of Comparative Medicine and Surgery,' a periodical confined to a relatively small circle of readers. A large amount of new material has now enabled Dr. Shufeldt to add so considerably to his information, not only about the Herons proper, but about their nearest relatives as well, that he has considered it time to republish the body of the original work with additions, and to supplement it by an account of the schemes of Classification since 1867, and by dissertations on the osteology of *Tantalus loculator*, of *Mycteria americana*, of the Ibises, and of *Ajaja ajaja*. The author deplores the lack of a perfect skeleton of the last-named, while of *Mycteria* only a sternum and a shoulder-girdle were to hand.

144. *Slater on the Birds of Iceland.*

[Manual of the Birds of Iceland. By Henry H. Slater, M.A., F.Z.S., M.B.O.U. 8vo. David Douglas: Edinburgh, 1901. Pp. i-xxiii and 1-150. Price 5*s*.]

Mr. Slater has for some time been expected to publish a book on the Birds of Iceland, a task for which he is unusually well qualified from his energetic exploration of the country and his excellent knowledge of its Ornithology. The work now before us will be most useful to all who visit the island, and successfully combines the character of a manual for the general public with that of a scientific treatise for the expert. For the latter, however, a few more text-references to the literature would have added to the advantage to be gained from the full Bibliography. Extending from Snorro Sturleson to the present day, the publications which the author has had to consult are many and scattered, while the fact that they are written in Icelandic, Danish, German, Latin, and English makes a comprehensive work on the birds and their status the more valuable.

We are sorry to hear that the Raven, Iceland Falcon, Grey Phalarope, Black-tailed Godwit, and Little Auk are decidedly decreasing in numbers, owing to the failure of the Close-Season Law of 1885 (printed in full) to protect birds' eggs, and that the scrub suffers from the ravages of sheep, much as the forests in the Sandwich Islands do from those of cattle. At the present time a comparison of the avifauna of Iceland and Shetland affords many points of interest, especially as regards migration.

Mr. Slater, of whose tone we do not always quite approve, takes exception to certain points in the writings of modern authorities, especially as regards the Icelandic names of birds and their orthography; but he rightly hesitates to accept every record of a bird's occurrence, or even positively to affirm his own experience as to the nesting of the Sanderling. Many names, such as Kite, Cuckoo, and Stork, are shown to be commonly met with in Icelandic literature, although such species are quite unknown in the island. The erroneous record of *Tringa fuscicollis* proves to have been due to a misapplication of the name *T. schinzi*.

A few slight textual errors may well be attributed to the printer, but in the article on the Northern Wren, a piecing together of notes has caused the author first to say that he never met with the bird, and then to describe his discovery of it. With regard to facts gleaned from the Durham University Museum, it may be added that W. Proctor owned at least one supposed egg both of the Pomatorhine Skua and of the Grey Plover from Iceland, with others of the so-called *Fratercula glacialis*—records of little value in themselves, but shewing, in the first case, that Faber was not alone in his statement about the breeding. Proctor, moreover, firmly denied that the Eared Grebe nested in Iceland.

Grave doubts are expressed as to the breeding of the King Eider, the Garganey, and other birds. Mr. Slater's own records of the Common Golden-eye and of the Sooty Shearwater will be found in their proper place, while special attention is drawn to the fact of many of the breeding species failing to attain their full nuptial plumage in Iceland.

XLVIII.—*Letters, Extracts, Notices, &c.*

We have received the following letters, addressed to "The Editors of the Ibis":—

Sirs,—A male specimen of the Andaman Teal (*Nettion albigulare*) having just died at the Zoological Garden here, and having been forwarded to the Museum, I have taken the opportunity of examining the trachea, and find it to be furnished with a well-developed bony bulb, very similar to that of the Common Teal (*Nettion crecca*), as figured in Yarrell's 'British Birds' (4th edition, vol. iv. p. 391).

Yours &c.,
F. Finn.

India Museum, Calcutta,
May 9th.

Sirs,—If Mr. C. E. Nipper's identification of a Honey-Buzzard in the cases in Somersetshire referred to by Mr. W. P. Westell in your last issue (above, p. 515) is correct, we have a remarkable instance of transference of habits. The Honey-Buzzard has hitherto been found breeding during the last days of May or June in well-wooded districts, at no great elevation, and always in trees. Moreover, I am not acquainted with any authentic record of more than three eggs of the Honey-Buzzard having been found in a nest, and the clutch almost always consists of two.

The Common Buzzard, which breeds regularly in a neighbouring county, lays in April and May, breeds on cliff-faces and in lofty situations, while about twelve per cent. of the nests contain four eggs. Yours &c.,

Francis C. R. Jourdain.

Clifton Vicarage, Ashburne, Derbyshire,
July 15th, 1901.

Sirs,—My friend Mr. Arthur P. Page permits me to send particulars of a Nutcracker shot by a gamekeeper near Ilkley, Yorkshire, on the 5th of Jan., 1901, and purchased by Mr. Page in the flesh on the same day. Unfortunately the sex was not determined. On comparing this specimen with the two Dutch examples sent by Heer F. E. Blaauw to Dr. Sclater (*cf.* Bull. B. O. Club, vol. xi. p. 48, Feb. 28, 1901), I find that it belongs to the slender-billed or eastern form, *Nucifraga caryocatactes macrorhynchos*, and it is therefore interesting as indicating, so far as is known, the western limit of the irruption of this bird in Europe during the last months of 1900. A Nutcracker, which may also belong to this form, has been recorded by the Rev. H. Marmaduke Langdale as having been shot at Chilgrove, in West Sussex, on Dec. 21st, 1900 (Zool. 1901, p. 107).

I have followed Dr. Stejneger (Proc. U.S. Nat. Mus. 1888, p. 426) in using C. L. Brehm's name *macrorhynchos* rather than *leptorhyncha* of Dr. R. Blasius.

Yours &c.,
W. RUSKIN BUTTERFIELD.

4 Stanhope Place, St. Leonard's-on-Sea,
July 6th, 1901.

SIRS,—From Herr Herluf Winge's letter (see above, p. 516) it would appear that the naturalists of Copenhagen are unable to discover any traces of Pelicans in West Jutland, and that, notwithstanding six years of "much enquiry, only negative evidence is accumulating"! One may be permitted to wonder what form these lengthy and interesting enquiries have taken. I imagine that a working field-ornithologist would settle the point in a few days. I notice, however, that Herr Winge admits that he has only visited the Ringkjöbing fjord twice in twenty years. I venture to suggest to our friends in Denmark that this is not a matter to be solved by references to musty tomes, or by antiquarian researches, even though they extend back to the Stone Age. It is a simple question of outdoor observation. May I contribute one further link of evidence which, if not positive, is at least not negative? I quote an extract from a letter addressed to me last July by an English naturalist:—

"I have just read your letter in 'The Ibis' on Pelicans in West Jutland. It may interest you to know (for in a measure it corroborates what you saw) that, along with a friend, I spent a fortnight there last spring (May, 1900).

"On May 21st, 1900, we were right down at the mouth of the Tarm river, where it runs into the Ringkjöbing fjord. There is a small island about half a mile out in the fjord. I waded to this island; at low tide there is a sandbank left dry on one side of it. I there saw a pair of Pelicans. In my mind there is not a doubt about it, as I had field-glasses with me, and got fairly close to them before they flew off in the direction of Tipperen.

"I have drawn a rough map of the district, and marked with a red cross the spot where I saw the Pelicans. No doubt you will be able to make it out, as you were, I think, all over this ground."

The red cross on the map referred to is within half a dozen miles of the spot where my late brother and I saw the Pelicans in May, 1893. I would add, for the information of future visitors to West Jutland, that the Pelicans are *not* to be looked for on dry land or fen, but exclusively on the open salt-waters and tidal flats of the Ringkjöbing fjord.

Yours &c.,

ABEL CHAPMAN.

Houxty, Wark-on-Tyne, Northumberland,
Aug. 18th, 1901.

Sale of Alphonse Milne-Edwards's Library.—The following are some of the prices realized by ornithological books at the sale of the library of the late Alphonse Milne-Edwards, which took place at Paris in May last. The produce of the sale was given by the deceased's will to the Muséum d'Histoire Naturelle of Paris, to be employed in buying additions to the Collections:—Audebert et Vieillot's 'Histoire naturelle et générale des Colibris,' 2 vols., 200 fr.; Bädeker's 'Die Eier du europäischen Vögel,' 130 fr.; Bettoni's 'Storia naturale degli uccelli che nidificano in Lombardia,' 2 vols., 205 fr.; Bonaparte et Schlegel's 'Monographie des Loxiens,' 62 fr.; Buller's 'Birds of New Zealand,' 90 fr.; ditto, ed. 2, 2 vols., 135 fr.; 'Catalogue of Birds in the British Museum,' 27 vols., 1250 fr.; Dresser's 'Birds of Europe,' 8 vols., 1140 fr.; Elliot's 'Monograph of the Bucerotidæ,' 170 fr.; Elliot's 'Monograph of the Phasianidæ,' 2 vols., 1350 fr.; Elliot's 'Monograph of the Pittidæ,' 185 fr.; Elliot's 'Monograph of the Paradiseidæ,' 180 fr.; Elliot's 'Monograph of the Tetraoninæ,' 176 fr.; Elliot's 'Birds of North America,' 2 vols., 225 fr.; Eyton's 'Osteologia Avium,' 100 fr.; Gould's 'Birds of the Voyage of the Beagle,' 135 fr.; Gould's 'Birds of Australia,' 8 vols., 3650 fr.; Gould's 'Birds of New Guinea,' 5 vols., 1300 fr.; Gould's 'Birds of Asia,' 7 vols., 1550 fr.; Gould's 'Icones Avium,' 350 fr.; Gould's 'Trochilidæ,' 5 vols., 1550 fr.; Gray's 'Genera of Birds,' 3 vols., 450 fr.; 'The Ibis,' 1859–1900, 1650 fr.; Jerdon's 'Birds of India,' 3 vols., 100 fr.; 'Journal für Ornithologie,' 1853–88, 300 fr.; Legge's 'Birds of Ceylon,' 140 fr.; Malherbe's 'Monographie des Picidées,' text and Atlas in 4 vols., 440 fr.; Sclater's 'Monograph of the Jacamars and Puff-birds,' 100 fr.; Sclater and Salvin's 'Exotic Ornithology,' 205 fr.; Sharpe's 'Monograph of the Alcedinidæ,' 160 fr.; Sharpe & Wyatt's 'Monograph of the Hirundinidæ,' 2 vols., 145 fr.; Shelley's 'Monograph of the Nectariniidæ,' 100 fr.; Siebold's 'Fauna Japonica,' Aves, 210 fr.; Temminck and Knip's 'Histoire naturelle générale des Pigeons,' 2 vols., 500 fr.; Vieillot's 'Histoire naturelle des Oiseaux de l'Amérique Septentrionale,' 2 vols., 260 fr.

Honorary Degree for an Ornithologist.—The first Honorary Degree of Doctor of Science given by the University of Oxford was granted to the Senior Editor of 'The Ibis,' in a Convocation held in the Theatre, on the 20th of June last. Prof. Love, in presenting Dr. P. L. Sclater for this degree, made the following Latin speech:—

"Adest Philippus Lutley Sclater, Sodalis Societatis Regalis, Magister Artium in Academia nostra, Philosophiæ Doctor in Bonnensi, Collegii Corporis Christi Socius honoris causa creatus. Qui vir, ut primos eius annos et incunabula

laudis breviter præstringam, si quis alius, vere Wiccamicus vocandus est, cum non solum ipse et postea duo eius filii sed olim pater atque avus in illustrissima Schola Beatæ Mariæ de Winton instituti sint. Ita per quattuor hominum ætates huius domus nomen in annalibus Wiccamicis notissimum. Nostræ mox Academiæ particeps et Collegii Corporis Christi alumnus, duos fere et quinquaginta abhinc annos graduatus est.

"In ὀρνιθολογίᾳ quam vocant hic profecto familiam ducit: hoc gubernante Societas Zoologica Britannica laude maxima floret; horti autem Zoologici Londinenses nullis usquam cedunt. Quod ad doctrinam exquisitiorem et rei Zoologicæ peritiam attinet, illud potissimum dixerim, hunc Regionum Zoologicarum naturam et limites primum perspexisse cum regionibus sex constitutis, Palæarctica, Nearctica, Neotropicali, Æthiopica, Orientali, Australi, orbem terræ non hominum civitatibus sed ferarum generibus partiretur. Quam rationem, quinquaginta fere abhinc annos excogitatam, plurimi ita emendare et corrigere conati sunt, quo in numero erat ipse Huxley, vir in hoc genere doctrinæ præstantissimus, ut etiam hodie probatissima et naturæ convenientissima esse videatur. Multa docuit hic vir ingeniosissimus quæ adhuc omnium iudicio comprobantur, velut Africæ septentrionalis harenosæ Nomadum solitudini superiacentia re vera Palæarctica esse atque Europæ affinia; Arabiæ autem meridiana in regionem Africanam sive Æthiopicam cadere: de duabus etiam Americæ continentibus felicissime monuit, hanc ab illa dividi, non isthmo illo Panamensi, sed septentrionali Mexicæ latere, cum ultra citraque hanc quasi lineam accuratissime descriptam diversissima ferarum genera inveniantur."

The Collection of Birds in the British Museum.—We extract the following paragraphs relating to Birds from the Parliamentary Report on the British Museum for the year ending March 31st, 1901:—

"The rearrangement of the Exhibition-series has been

continued in the Gallery. Seven additional pier-cases and four large table-cases have been re-filled with new and beautifully-mounted specimens, and the old specimens, when of historic value, have been unmounted and the remainder placed among the duplicates. The mounting of the new specimens has mainly been executed by Mr. Cullingford, of Durham.

"Nine new groups of birds with their nests have been added during the year, viz.:—The Stock-Dove (*Columba œnas*); the Herring-Gull (*Larus argentatus*); the Roseate Tern (*Sterna dougalli*); and the Sandwich Tern (*Sterna cantiaca*), from Scotland, presented by Capt. S. G. Reid and Mr. W. R. Ogilvie-Grant: the Avocet (*Recurvirostra avocetta*) and the Black-tailed Godwit (*Limosa limosa*), from Europe, presented by Messrs. J. Stares and E. Earle: the Ivory Gull (*Pagophila eburnea*), from Franz-Josef Land, presented by Mr. F. G. Jackson: White's Thrush (*Geocichla varia*), from Japan, presented by Mr. Heatley Noble; and the Nutcracker (*Nucifraga caryocatactes*), from Hungary, presented by Mr. C. G. Danford.

"Rapid progress continues to be made with the re-arrangement of the collections of eggs and skeletons. Since December 1899, 14,000 specimens of eggs have been catalogued by Mr. Eugene W. Oates, and various large accessions have been incorporated and made available for reference. The first volume of the Catalogue of Eggs will shortly appear *, and the plates for the second volume have already been drawn.

"The re-arrangement and determination of the bird-skeletons continue to make progress. Mr. W. P. Pycraft has completed the arrangement of the skeletons of the Ratitæ, and those of the Accipitres have been determined and partly arranged. A number of valuable adult birds and embryos in spirits have been added. The collection of birds in spirits is, unfortunately, in a terribly congested state, owing to lack of space in the cabinets, and it is now impossible to find any particular specimen without serious loss of time.

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* This is now published, see above, p. 731.

"The actual number of specimens registered during the past year is 6,357. All these have been incorporated and neatly labelled.

"AVES.—The total number of additions to this group is 7,414, of which the following may be specially mentioned:—

"Nine hundred and sixty-seven birds from the interior of British East Africa; presented by Lord Delamere: 90 birds, including the type of a new species (*Cossypha omoensis*), procured on his journey to Lake Rudolf, and presented by Dr. Donaldson-Smith: 121 birds from the New Hebrides, including the types of twelve new species, presented by Capt. A. M. Farquhar, R.N.: 85 birds from Mount Kenya, including the types of four new species and two species new to the collection collected by the Mackinder Expedition: 309 birds from Nyasaland, including the type of a new Swift (*Cypselus sharpii*), presented by Mr. Alfred Sharpe, C.B.: parent-birds, nest, and eggs of the Ivory Gull (*Pagophila eburnea*), from Franz-Josef Land, presented by Mr. F. G. Jackson: 307 birds from Mashonaland and the Congo; presented by Mrs. Jameson: 41 birds from S.E. New Guinea, &c., including one example of a species new to the collection, purchased: 45 birds from Morty Island, purchased: 131 birds from Sarawak, purchased: 104 birds from Mashonaland, purchased: 195 birds and 40 nests and eggs from Sarawak, presented by Dr. C. Hose: 22 birds from British New Guinea, presented by His Excellency R. G. Le Hunte, C.M.G.: 32 birds from French Congo, including the types of two new species, collected by Mr. G. L. Bates, purchased: 33 birds and 37 eggs from the River Ruo, B.C. Africa, including a specimen of *Machærhamphus anderssoni*, purchased: 256 birds from China, including examples of three new species, presented by Mr. C. B. Rickett: 35 birds from North Queensland, presented by Mr. H. C. Robinson: parent-birds, nests, and eggs of the Stock-Dove (*Columba œnas*), Herring-Gull (*Larus argentatus*), Roseate Tern (*Sterna dougalli*), and Sandwich Tern (*Sterna cantiaca*), from Scotland, presented by Capt. S. G. Reid and Mr. W. R. Ogilvie-Grant: 37 eggs from South

Australia, presented by Mr. E. S. Moulden: 95 birds from the Zambesi, presented by Capt. Boyd Alexander: 215 birds and 14 eggs from Australia, presented by Donald MacIntosh: parent-birds, nests, and eggs of the Avocet (*Recurvirostra avocetta*) and of the Black-tailed Godwit (*Limosa limosa*); presented by Messrs. John Stares and E. Earle: 104 birds, in spirits, from Costa Rica, purchased: the types of 7 new species of birds from Uganda, presented by Mr. F. J. Jackson, C.B.: 568 eggs from the east coast of N. America, received in exchange from the Princeton University, New Jersey: 19 Greenland Falcons, purchased: 243 birds from South Arabia, including the types of three new species, collected by the Percival-Dodson Expedition, purchased: parent-birds and nest of White's Thrush (*Geocichla varia*) from Japan, and 20 embryo birds in spirits, presented by Mr. Heatley Noble: 14 birds and 13 nests from North Australia and New Guinea, purchased: 82 birds from the White Nile, presented by Capt. H. N. Dunn, R.A.M.C.: a cotype of *Cerasophila thompsoni* from the S. Shan States, presented by Colonel C. T. Bingham: 200 birds from the Andes of Ecuador, purchased: a collection of mummified birds, presented by the Committee of the Egypt Exploration Fund: 12 birds from the Moluccas, including examples of six species new to the collection, purchased: 6 specimens of a new bird (*Tatare vaughani*) from Pitcairn Island, presented by Lieut. Vaughan, R.N.: 3 birds from Hadramaut, Southern Arabia, including the type of a new Grosbeak (*Rhynchostruthus percivali*), presented by Mr. A. Blayney Percival: 950 birds from the Shan States, including the types of seven new species, presented by Colonel G. Rippon: and a specimen of the rare Pigmy Tinamou (*Taoniscus nanus*) from the Argentine Republic, presented by Mr. Noel L. Holden."

Spring Birds at Mashad, N.E. Persia.—In his 'Khurasan and Seistan,' Col. Yate writes as follows:—"Spring at Mashad is a charming time, and the whole country seems to blossom out. Birds of all sorts appear to breed. The Blue Jay or Indian Roller—the *Kulagh-i-Sabz* or Green Crow, as it is called by the Persians—comes in hundreds, and takes possession of almost every nullah-bank, closely followed by that gay bird, the European Bee-eater, which similarly lays its eggs in a hole in some bank. Almost every Kanat-well has its pair of Pied Wagtails, the sky is full of Swallows and Swifts, and the Persian Nightingale sings and breeds in the gardens. At one time I had two Nightingales' nests and six or seven nests of a little Tree-Warbler in my garden, all within a few yards of the front-door steps. Soon after the middle of April the Quail appear, and the cock birds are netted in large numbers, by means of calls, in the young wheat crops, and sold in the bazaar at the rate of six for a kran. They breed around the town, and towards the end of July, after the corn is cut, young quails are to be found in the grain-fields and are excellent eating. Another bird that breeds in Khurasan in large numbers is the Rose-coloured Starling—the *Sár*, as the Persians call it. The Koh-i-Sangi to the south-west of the town is a favourite resort of these birds; large flocks gather there, and breed amongst the tumbled mass of rocks and boulders that forms the western end of the hill. In June, when the young birds are fledged, men and boys go out from the town with baskets and catch them in numbers. It is a curious sight to see them hunting about the rocks for the nests. The old birds sit around, jabbering away as hard as they can, almost every one of them with either a grasshopper or a white mulberry in its mouth for the benefit of the young birds that, alas for them, are being ruthlessly carried off."

The Honey-guide in Abyssinia.—From the 'Times' of August 18th, 1901, we extract the following paragraph contained in a letter of its special correspondent with the Abyssinian Field Force, dated at Jig-Jigga, May 5th:—

"On our way I made the acquaintance of the '*Morris*' or Honey-bird, of which one has often read in travellers' books, but of whose existence and powers I had personally always been sceptical. I encountered the bird as I was wandering one morning along the hills skirting the valley in search of any game that might present itself. A bird settled on a tree in front and began to chatter volubly. The Somalis with me explained it was '*Morris*,' the Honey-bird, with tales of whose wonderful doings they had often regaled me. The bird seemed to be of about the same size as a thrush, with a grey breast and yellow beak and long tail. We followed it as it fluttered from bush to bush, and if we halted even for a minute, it came back urging us to move on. The Somalis kept whistling and talking to the bird, which seemed to make it more talkative than ever. At last it stopped and would lead us no further. The men began to search in the jungle to see if it was a lion it was taking us to, for the '*Morris*' is just as likely to do so as to show you honey; but there were no signs of any dangerous animals. On examining the trunks of the trees near by, I found a tiny crevice in the stem of a dead trunk, out of which exuded some moisture, which, on being tasted, was found to be honey. To avoid the attacks of the bees a fire was first lit, in the smoke of which the men could take refuge, and then, the *shikari*, climbing up the stem a few yards, discovered a large hollow running down the length of the trunk. We immediately set to work with our hunting-knives, and cut out the front of the tree sufficiently to allow a man to reach down the hollow, whence he pulled out four long pieces of excellent comb-honey. The bees, curiously enough, did not attempt to molest the thief. The Honey-bird sat by all the time, eagerly watching our doings, and when we left we placed a piece of the spoil on a branch of a tree, which '*Morris*' at once attacked greedily, and we left him there."

Nesting-habits of Hornbills.—At Axum (Abyssinia) a pair of the Scarlet-beaked Hornbills * had their nest in a hollow tree in the garden of the house I inhabited. When I arrived the female had already been plastered up in her nest by the male, who used to feed her daily. Before I left the mud had been removed, and the mother and two young ones were perched on a neighbouring branch, the young not fully fledged and the mother a most disreputable-looking object, with ragged plumage and unable to fly. The male was then very busy, as he had three to feed.—*Wylde's Modern Abyssinia*, p. 492.

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* Probably *Lophoceros erythrorhynchus* (Temm.).

The Australasian Ornithologists' Union.—We are pleased to have received a circular announcing that the AUSTRALASIAN ORNITHOLOGISTS' UNION (*cf.* Bull. B. O. C. xi. p. 54) has been successfully started, and that the first General Meeting will be held at Adelaide in October or November of this year. The Journal of the Union will be appropriately named 'The Emu.' Col. W. V. Legge, F.Z.S., M.B.O.U., will probably be the first President.

The Pará Museum.—We are glad to be able to announce that the Governor of the State of Pará has issued a decree ordering that the name of the Museu Paraense shall be in future "MUSEU GOELDI," in honour of its distinguished Director, our excellent correspondent Prof. Dr. Emil Goeldi.

New Ornithological Periodical.—On or about September 1st, 1901, the Bird Club of Princeton University was to publish its first 'Bulletin,' edited by Mr. Wm. E. D. Scott, Curator of Ornithology, Princeton University. It should contain an annotated list of the birds of Princeton and vicinity, by William Arthur Babson, B.S., 1901. This list is the result of four years of scientific observation and study of the birds of Princeton. The 'Bulletin' will contain about seventy or eighty pages, will be plainly bound in paper, and will be sold for one dollar.

Birds in the Zoological Garden, Cairo.—From Capt. Stanley Flower's report, for 1900, on the Zoological Garden at Ghizeh, near Cairo, we learn that 25 species of birds living at large in the Garden were noted during that year. *Turdus musicus, Motacilla alba,* and *M. cinereocapilla* are regular winter visitors, besides 5 species of Ducks.

Additions to the U.S. National Museum.—From the repo of the Secretary of the Smithsonian Institution for the ye ending June 30th, 1900, we extract the following par graph :—

“The Division of Birds has received the Goodfello Collection of Humming-birds, comprising about 1200 spec mens; 300 specimens of the birds of the United Stat of Columbia, from Mr. Outram Bangs; 500 specimens Hawaiian birds from Mr. H. W. Henshaw; a specimen the Cuban Macaw (*Ara tricolor*), now believed to be e tinct, from Maj. W. A. Glassford, U.S.A.; and a skeleton the rare Harris's Cormorant, from Leland-Stanford-Juni University.”

XLIX.—*Obituary.*

The Abbé Armand David, Mr. Lionel Wiglesworth, and Mr. William Doherty.

Ornithology has sustained a severe loss in the person of th Abbé Armand David, the indefatigable explorer of parts o the mysterious interior of China now practically closed to th scientific traveller, and the discoverer of many new facts i Botany and Geology as well as in Zoology.

Born at Espalette in the Department of the Basse Pyrénées on the 7th of September, 1826, and entered a St. Lazare in 1848, he devoted his untiring energies, after preliminary training of ten years' educational work at th College of Savone in Italy, to the service of the Lazaris Missionary establishments in China.

In 1862 the Abbé was placed in charge of a French schoo in Pekin, and at once began to give unmistakable proofs o his great interest in science by the valuable collections tha he transmitted to the National Museum of his native country with the full approval of his ecclesiastical superiors. At the same time he was amassing a collection for his scholastic establishment, and had begun to correspond with and profit by the advice of some of the best scientific men of the time.

A trip to South Mongolia and the great mountain chain of Si-chan having afforded a measure of preliminary training, Père David undertook in 1864 an important expedition to Jéhol, north of Pekin, near the remains of the great Mongolian forest, under the guidance of a Christianized Lama named Sambdatchiemba, who had thirty years previously guided MM. Huc and Gabet to Lhassa. In ten months so many treasures were secured and forwarded to Paris, that the authorities there determined to commission the missionary officially, and subsidised him to explore the less-known portions of the Celestial Empire. As a consequence, he undertook a second great expedition in 1866, to the districts lying within twenty days' journey westward from Pekin, and subsequently a third in 1868–70 from Shanghai by the Blue River to Kiang-si, Se-chuan, and Moupin in the direction of Koko-Nor.

During these years the health of the fearless explorer had suffered so severely that he was recalled to France, where in 1871 his collections were publicly exhibited. On his return to China in 1872, Père David carried out a fourth expedition to Chensi and the yellow-earth region of the Hoang-ho basin, though obliged to abandon his projected visit to the great mountains of Tsing-Ling by a Mahomedan rebellion, and another to Fokien by his failing health.

Prostrated by fever, the Abbé was obliged in 1874 to return once more to France, where fortunately his health was partially restored, and he lived for twenty-five years in the house of St. Vincent de Paul, busied with his collections. He died on November 10th, 1900.

Never more happy than when assisting or working for the good of others, Père David was as modest and unassuming as he was enthusiastic and indomitable; while the rules of his order doubtless precluded him to some extent from accepting the full honours due to his scientific attainments. He was, however, a Laureate of the Society of

Geography, and a Correspondent of the Institute of France and of the Academy of Sciences.

Of his works by far the most important to ornithologists is the 'Birds of China,' undertaken in collaboration with M. E. Oustalet; but M. A. Milne-Edwards's 'Recherches sur les Mammifères' related almost entirely to specimens forwarded by Père David, and other new species were described in London and in Berlin. Sixty-three mammals and sixty-five birds obtained by him have been declared to be new to science. In 1889 he presented to the first Reunion of the International Scientific Congress of Catholics a memoir on the Chinese fauna. His reptiles, batrachians, fishes, insects, and plants were described by various authorities; but it seems that birds were the Abbé's chief delight, and all readers of 'The Ibis' may well join in deploring the great loss that the world of science has sustained.

The following is a list of the titles of Père David's principal works and memoirs relating to Birds:—

1. Note sur les Espèces nouvelles d'Oiseaux recueillis par M. l'Abbé Armand David dans les montagnes du Thibet Chinois. Nouv. Archiv. du Mus. Paris, vi. (1870) Bull. pp. 33–40.
2. [Description of *Parus pekinensis*.] Ibis, 1870, p. 154.
3. Nouvelle espèce de *Crossoptilon* (*C. cærulescens*). C. R. Acad. Sci. Paris, lxx. (1870) p. 538.
4. On two new Species of Birds from Moupin, Western Szechuen. Ann. & Mag. N. H. ser. 4, vii. p. 256 (1871).
5. Catalogue des Oiseaux de la Chine observés dans la parte septentrionale de l'empire (au nord du Fleuve-bleu) de 1862 à 1870. Nouv. Archiv. du Mus. Paris, vii. (1871) Bull. p. 3.
6. Rapport adressé à MM. les Professeurs-Administrateurs du Muséum d'Histoire Naturelle. Nouv. Arch. du Mus. Paris, vii. (1871) Bull. p. 75.
7. Journal d'un Voyage dans le Centre de la Chine et dans le Thibet oriental. Nouv. Archiv. du Mus. Paris, viii. (1872) Bulletin, pp. 3–128; ix. (1873) pp. 15–48.
8. Note sur quelques Oiseaux de la province de Chen-Si. Ann. Sci. Nat. (Zool.) xviii. (1873) No. 5.
9. Sur quelques Oiseaux de Chine. Bull. Soc. Philom. Paris, sér. 6, xii. p. 18 (1875).

10. Journal de mon troisième Voyage d'exploration dans l'Empire Chinois. 2 vols. 8vo. Paris, 1875.
11. Les Oiseaux de la Chine. Par l'Abbé Armand David et E. Oustalet. Text & Atlas. 8vo. Paris, 1877.

With deep regret we have to record the death at Suva, the capital of the Fiji Islands, on the 7th of June last, of Mr. LIONEL WILLIAM WIGLESWORTH, author of the 'Aves Polynesiæ' (1891) and (jointly with Dr. A. B. Meyer) of 'The Birds of Celebes' (1898). Born on the 13th of February, 1865, being the second son of the late Rev. James L. Wiglesworth, Curate of Hanslope-with-Castlethorpe in the county of Buckingham, the deceased naturalist was educated at Trinity School, Old Stratford, and from early years was an ardent observer of birds and a keen collector of their eggs, while the constant reading of Waterton's 'Wanderings' filled him with a much greater desire to know more of foreign ornithology than is commonly possessed by the ordinary birds'-nesting boy. After the death of his father, in 1882, his inclinations were fostered by an uncle and aunt, and resolving to make a serious study of Ornithology, he repaired in 1889 to Brunswick, armed with an introduction to Professor Wilhelm Blasius, and placed himself under him as a teacher. There he remained working industriously for two years, and then proceeded to Dresden as a volunteer assistant to Dr. A. B. Meyer in the Museum of the Capital. It had long been Mr. Wiglesworth's great aim to carry on ornithological investigations in some distant country, and it was a bitter disappointment to him that the offer of his services, for an almost nominal remuneration, was not accepted by the Committee for the Zoological Exploration of the Sandwich Islands, at the beginning of its operations. The opportunity of going abroad, to which he had been so long looking forward, did not occur till nearly a twelvemonth ago, and in November 1900 he left England for Australia and New Zealand, with the intention of making his way from the latter of those countries to as many of the chief groups of islands in the Pacific as he could, and of working them on his own account.

He began with the Fijis, to the authorities of which colony he was provided with recommendations from Sir Walter Buller, Dr. Sclater, and others. Soon after his arrival there, and in the course of his first journey across the principal island, he had a serious attack of dysentery, from which he had barely recovered before a second completely prostrated him, and he was ordered by his medical adviser to leave the island as soon as possible for New Zealand, in the hope that the voyage would revive him. It was, however, too late for him to be removed, and he died at Suva on the 7th of June, his last letter (to a brother) containing the words "I am among friends, and quite easy."

Mr. Wiglesworth had so prepared himself for his work that he knew almost everything about Polynesian Ornithology which the study of specimens or books could teach; but, more than that, he knew how very little all that knowledge came to, and how necessary it was to add to it before so many species peculiar to this or that group of islands, whose fate is now in jeopardy, became extinct. It would be no easy matter to find anyone with such knowledge to replace him, and certainly not without a delay that would be fatal to the threatened forms—so rapidly is the process of extirpation going on. Apart, then, from the loss to his many friends both in this country and in Germany, the death of so enterprising and well-instructed an Ornithologist in his full vigour is a real loss to science.

We also much regret that we have to announce the death at Nairobi, in British East Africa, of William Doherty, who was one of the best-known and successful of Collectors. We hope to be able to give a notice of his life and work in our next number.

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